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Abstract

A project investigated a way in which early intervention into the lives of babies might break the poverty cycle. Major objectives were to find out whether the use of disadvantaged paraprofessional women as Parent Educators of indigent mothers of infants and young children enhanced the development of the children and increased the mother's competence and sense of self-worth. Parent Educators each assigned to a graduate student supervisor, received five weeks of intensive preservice training and one day of inservice training weekly. The major treatment variable was instruction of the mother by the Parent Educator in stimulation exercises once a week, in the home, on a regular basis. (Exercises consisted of a systematic series of perceptual-motor-auditory-tactile-kinesthetic inputs based upon a review of the theory and research on cognitive and affective development in the earliest years.) At the end of the first year, children whose mothers had been involved in the project were superior to control children on both the Griffiths Mental Development Scales and on the series material designed as teaching materials for the project. At the end of the second year children whose mothers had been in the project from the beginning or whose mothers entered the program when their child was one year of age were superior on the series material to control children. The second objective was partially achieved. (Implications are discussed.) (JS)

ED033912

EARLY CHILD STIMULATION THROUGH PARENT EDUCATION

Institute for the Development of Human Resources

College of Education
University of Florida
Gainesville, Florida 32601

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Final Report to the
Children's Bureau, Social and Rehabilitation Service,
Department of Health, Education and Welfare
PHS-R-306, PHS-R-306(01)

June 30, 1969

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Introduction

Although it may not be customary in a scientific project to include an "acknowledgement" section, I feel that it is appropriate in the case of this project. The page following the Introduction contains the names of all staff who have been involved in this project. This has been a tremendous undertaking, far more complex than the principal investigator imagined when he began, in 1964, to conceive of a longitudinal intervention study as a part of the plan for a Human Development Center at the University of Florida. Many people, in addition to those named, have played valuable roles in contributing ideas and assistance to the project from its planning stages which led to the original Fund for the Advancement of Education grant in 1966 through its final stages.

The initial idea for working with mothers of infants came from my wife, Esther L. Gordon, who practiced "stimulation" with our children Gary and Bonnie, and who taught me the importance of early experience.

Several of the staff deserve special recognition: J. Ronald Lally, who joined the project in September, 1966 as field director with responsibility for implementing the training and home visit activities, Carol E. Bradshaw, who took charge of the initial selection of Parent Educators, the relationships with the Teaching Hospital and served as a supervisor for two years, John Maurelli and Peggy Kirkpatrick, who developed the data-processing system and handled all the computer operations, Virginia Greenlee, who, as project secretary, met many of the daily problems of the Parent Educators and families. Of course, the Parent Educators themselves deserve recognition. They carried the brunt of the work, performed the most difficult tasks, faced the most frustrations in

relating to the families on the one hand and the research and supervisory staff on the other.

Several members of the Institute for the Development of Human Resources made contributions along the way, and I wish to acknowledge their help and support: J. B. Hodges and Janet McCracken in the initial planning stages; R. Emile Jester and Robert S. Soar in research design and statistical analyses.

Finally, the most important recognition should go to the families themselves who accepted us on faith, stayed with us in spite of difficult life situations, and who demonstrated their concern for their children's futures.

Ira J. Gordon
June 19, 1969

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CHAPTER 1

Early Child Stimulation Through Parent Education

1. Problem

The purpose of this project was to investigate a way in which early intervention into the lives of babies might break the poverty cycle. The project attempted to simultaneously raise the chances that the infant would reach a higher level of intellectual functioning and that the adult who mothers him would gain in competence and feelings of self-worth.

To achieve this purpose, the technique of using disadvantaged women to teach mothers how to stimulate their infants was developed in a pilot program.

The pilot program, described in Appendix A, demonstrated that disadvantaged women can be selected, instructed and placed in other disadvantaged homes to teach mothers ways to stimulate the perceptual, motor and verbal activities of their infants.

The stimulation procedure consists of a systematic series of perceptual-motor-auditory-tactile-kinesthetic inputs based upon a review of the theory and research on cognitive and affective development in the earliest years.

The concept that the earliest years of life are critical in the development of not only the personality but also in the intellectual development of the individual is becoming generally accepted by the scientific community and the society-at-large. A clear indication of the spread of this idea is in the President's state of the union message of January, 1967, in which he urged that we try new methods of child development and care from the earliest years. However, there is a

considerable empirical and theoretical gap between the generalization stated above and the systematic implementation of procedures to foster development. For example, the nature of the experiences which serve to stimulate development, and their sequencing, is not fully understood. The timing and amount of intervention are unknown qualities. The interplay of family climate and task is not clear. In addition to these scientific questions, we face practical questions as to how various populations can be reached to use what is known. Although laboratory work should be continued, the basic test of the concept must be conducted under field conditions. It is only as stimulation techniques are investigated under home conditions, without elaborate gadgetry, that the practical as well as scientific questions concerning the efficacy of stimulation can be answered. The importance of providing opportunities for children to function at their highest possible level has been well stated by Hunt. "Participation in our highly technological culture calls for high competence in the use of our symbol systems of language and mathematics and for ability to think and to appreciate evidence. The rapidity of technological change demands that all individuals have the ability to cope with change. . ." (Hunt, 1966, p. 143-144) Based upon a series of programmatic investigations of child rearing, R. Sears (1957) hypothesizes that the differences between lower-class and middle class child rearing patterns are a function of access to information. The general literature on cultural deprivation indicates that language training and other activities which contribute to development are either minimal or constricted in disadvantaged families. Because of this deprivation, potential is damaged.

Given the belief in the importance of early stimulating experience, and the data that it is not available to indigent families especially in the rural and small-town South, how do we bridge the gap? How do we transmit to indigent mothers the information, along with the skill, concerning ways to play with and interact verbally with their babies so as to enhance the babies' potentials for development?

The pilot program developed a possible way to educate these parents to provide their children with a good start, so that the poverty cycle in these families might be broken. As the children are better equipped to cope with school, they can move out of the indigent class into productive, meaningful work. Further, as the mothers learn to deal effectively with their infants, their image of themselves and their general helplessness may change.

Our problem was to investigate the effectiveness of the particular technique developed in the pilot since it represented an innovation in child welfare services, which, if effective, could extend the reach of the professional, and, in the long run, reduce the need for services as the participants became more capable of meeting their own needs.

2. Review of Related Research

Effects of Environment on Cognitive Development

The work of Piaget (1952) and his associates implies that thinking does not merely emerge but can be traced to the impact of experience upon functioning in the early months and years. Cognitive development proceeds through a process of integration wherein previously organized behaviors become an integral part of subsequent behavior. As existing mental structures are modified through functional adaption in environmental interaction, intellectual growth occurs. Bloom (1964) indicates

that effects of environment are marked and that the first four years are most critical. Loretan (1966) stresses that any of these early years lost in a poor environment are almost irretrievable. The critical nature of early experience for subsequent development thus becomes a crucial consideration for educational planning.

Data concerning the differential effects of environmental stimulation on the development of infants have been collected under conditions of deprivation caused by understaffing in orphanages and institutions (Goldfarb, 1955; Dennis and Najarian, 1957; Provence and Lipton, 1962). Skeels and Dye (1939) reported that institutionalized infants, diagnosed as retarded, made significant upward changes in tested mental performance when placed in an environment with increased stimulation. Caldwell (1967) refers to a recent unpublished followup which found that the gains made by the stimulated group were sustained into adult life, while all but one of the control subjects who remained institutionalized developed classic syndromes of mental retardation. Several recent investigations (Rheingold, 1961; Sayegh and Dennis, 1965; Casler, 1965; White, Castle, and Held, 1964) have further demonstrated the feasibility of positively altering early development through introducing stimulation programs for institutionalized infants.

The infant in a deprived home has many of the same lacks as those in institutions. Pavenstedt's (1965) descriptions of the low-lower class home suggest that there is a paucity of concern for the infant and further decreasing interest as the child reaches toddler stages. Hunt (1966) points out that it is during the second year that stimulation, especially verbal, is lacking in culturally deprived homes.

If language-emerging months are critical to intellectual development, as Bayley (1966) suggests, the lack of stimulation in the lower class home may be, at least in part, causative of retardation. In reviewing theory and research on attainment of concepts, Siegel (1964) stated, "The long-term significance of the intellectual functioning needs to be studied longitudinally. To illustrate, it may be that one reason children from so-called culturally disadvantaged homes have difficulty in kindergarten and first grade is that they did not have appropriate stimulation during these early years" (p. 216). This study contributes information about the effect of stimulation on children growing up in their own homes through a careful assessment of groups receiving such stimulation and control populations who receive only "natural" inputs from their deprived environments.

The role of language in the acquisition of meaning for different social groups is contrasted by Bernstein (1961) and Hess and Shipman (1965). Bernstein finds that middle class persons utilize various elaborations of sentence structure and a range of referents to delineate and individuate personal meanings. The lower class members, on the other hand, rely in highly predictable implicit utterances which poorly equip them to formulate discriminations and generalizations, make feelings explicit, or, as a consequence, become actively responsible for their own behavior or learning. In summarizing the work done in the development of language, thought, and personality, Lewis (1963) stresses the significance of the first three years of life in the future orrectic and cognitive development of the child. "During the second year of life the process of the growth of meaning is a highly complex interaction of cognitive and orrectic factors" (p. 37). Lewis further noted that in

verbalizing the child does so in concert with others through interaction with them. During the second year "manipulative communication will also through extension and contraction, contribute toward naming" (p. 63).

Despite frequent references to the importance of the first two years by many authorities, there appears to be only one empirical investigation of a specific program for the second year. Irwin (1960) reported the effects of a program in which lower class mothers read to their infants for ten minutes each day beginning at thirteen months. At twenty months the experimental group was superior in all phases of speech.

The studies of Hess and Shipman, and Bernstein, cited above, have focused on the form and content of language. For the young child who comprehends little content, and even for the older child who does, the "tone of voice" in which content is relayed is another important part of the communication process (Kramer, 1962; Mahl and Schulze, 1964). Markel (1965) has demonstrated that the reliability of coding pitch, loudness, and tempo for a sample of language allows further analysis in contrasting speech differences as, for example, in assessing effects of an educational program. This study provided language experience and an assessment of its impact.

The interrelationships of specific cognitive attainments to perceptions of self-identity and person-identity have seldom been explored with young children. Several investigators have found that awareness of racial identification exists at three years (Morland, 1958; Stevenson and Stewart, 1958). Fowler (1962) reports that color discrimination is also a product of this period. The question of whether

participation in an enrichment study will facilitate the development of color discrimination and as a correlate, racial awareness, has not been previously investigated.

Environmental Influences on Affective Development

Although it is difficult to delineate the features of the mother-child relationship which are essential to personality development, Bowlby (1951), Spitz (1965), and Erikson (1950) postulate that a one-to-one relationship with a great deal of attention is necessary. Erikson stresses the vital role of the mother-child interaction during the first two years of life in developing the sense of basic trust and autonomy. He hypothesizes that "the capacity to find gratification in the outside world is related to the degree of success during the first two years of life" (p. 219).

Witkin (1962) noted that the early mother-child relationships and living conditions seem to be the determining influences on adult personality. Moss and Kagan (1964) saw maternal treatment from birth to three years as a better predictor of later childhood and adult ratings than that in other age periods. Sears (1957) and Bandura and Walters (1963) present further evidence of the influence of early child-rearing practice upon development. The homes in which this study was conducted offered many opportunities to investigate the child-rearing practices and living situation, and the effects these may have upon the child.

The Population

That the present position of the American Negro leads to negative self-perceptions has been noted by Goff (1949), Ausubel (1963), and

Kvaraceus (1965). Coleman (1966) stresses the Negro's perceptions of inability to control his own environment. The high correlations reported by Coleman between feelings of being at the mercy of chance happenings and such factors as school achievement coincide with the findings of Rotter (1966) and others investigating internal-external control expectancy. A series of studies were cited by Rotter as providing strong support for the hypotheses that the individual who has a strong belief that he can control his own destiny is likely to be alert to aspects of the environment which provide useful information for future behavior, to take steps to improve his environmental conditions, to place greater value on skill or achievement reinforcements (Gore and Rotter, 1963; Battle and Rotter, 1963). Although it has been shown that internal control is related to affiliation and initiative in improving conditions, the question of whether opportunities to affiliate and improve the life situation will change expectancy to a more internal direction has not been previously investigated.

The Non-Professional Worker

The utilization of persons as educators who are seen by the parents as like themselves and with whom they can easily identify is an innovation which attempts to aid both mother and child. Reissman (1966) and Levinson and Schiller (1965) report the utilization of non-professionals who are themselves members of the low socio-economic treatment group to increase communication effectiveness as well as relieve case loads of professional workers in welfare agencies. When use of the indigenous non-professional involves an educational program dealing

with interpersonal relationships, communicative skills, professional confidentiality and maintaining personal identification, performance at a high level of competency occurs. This competency, however, can be maintained only by continuous interaction of the non-professional and the professional; by a congruency of beliefs concerning human beings. This kind of constant interchange is central to the study.

This study, therefore, was designed to investigate, in a population representing indigent Negro and white families, in rural, small town and small city settings, the effects of psycho-social environmental variables described above upon the early development of children. It serves to begin to fill in some of the gaps in our knowledge about the population, the effects of stimulation, and the means to be employed in educating mothers in procedures which enhance the development of their children. The pilot project, described in Appendix A, laid the groundwork for this project.

3. Objectives

The objectives of this project were to find out whether the use of disadvantaged women as Parent Educators of indigent mothers of infants and young children (a) enhanced the development of the infants and children and (b) increased the mother's competence and sense of personal worth. It is understood that these two objectives may have a functional relationship with each other, and our hypotheses reflect this, but here we see them as two equally important outcomes which may be treated as independent. It is, of course, understood that other approaches might accomplish such objectives. The aim here was to investigate whether this particular complex of activities accomplished the goal.

In order to measure accomplishment of these two objectives, hypotheses were developed relating to such classes of variables as: home situation, content of stimulation materials, amount of stimulation.

A third objective, simply stated, was to increase our knowledge of the home life of infants in this population. As Ainsworth has indicated, "To date, there is little published information about infants in their own natural habitat, the home" (1964, p. 1). In order to achieve this objective, a series of questions was framed.

Hypotheses Relating to the First Objective

1. At the end of their first year of life, children whose mothers were educated in the stimulation series will be more highly developed than those whose mothers received no instruction.

- a. They will perform successfully on more series tasks.
- b. They will score higher on standardized measures of development.
- c. They will have more awareness of color and race.

These three sub-hypotheses apply also to hypotheses 2, 3 and 4, and, in null fashion, to 5.

2. At the end of their second year of life, children whose mothers were educated continuously since the children's third month will be more highly developed than (a) those children whose mothers received instruction in either the child's first or second year (b) those children whose mothers received no instruction.

3. At the end of their second year, children whose mothers were educated in only the first year will be developmentally more advanced than children whose mothers were educated in only the second year.

4. At the end of the first year of life, children whose mothers were educated in the series will be more highly developed than those whose mothers received a different pattern of instruction, of an equal length of time.

5. There will be no difference between those children whose mothers received no instruction or visits and those whose mothers had monthly visits from nurses during the first year.

Hypotheses Relating to the Second Objective

6. Mothers who receive instruction will have higher expectancy of internal control than those who do not receive instruction.

7. Mothers who were educated in the series will have more elaborate language codes than those who were not educated.

8. Mothers who were educated in the series will have higher feelings of self-esteem than those who were not instructed.

9. Mothers who were educated in the series will have different voice qualities (pitch, loudness, tempo) than those who were not.

In all the above hypotheses, differences will also be a function of length and time of instruction. The longer the time, and the earlier the instruction, the greater the difference.

Hypotheses Relating to Interaction Between Objectives (a) and (b)

10. There will be a positive correlation between the mother's expectancy of internal control when the baby is six months old and the developmental level of the baby at 1 year and 2 years of age for those receiving instruction.

11. There will be a positive correlation between the mother's expectancy of internal control when the baby is six months old and the amount of verbal activity of the mother.

12. There will be a positive correlation between movement of the mother on internal control orientation from 6-21 months and success of the baby on the series tasks.

Questions Related to the Third Objective

1. What is the density and crowding situation in these homes? How many people are in the home, and what are the space conditions?

2. Who actually cares for the baby? How many play mothering roles?

3. What is the extent and nature of verbal interaction?

4. What is the marital situation?

5. What happens during the visit which disrupts instruction?

6. What is the health situation of the baby?

7. How many children does the mother have?

8. Will there be differences in mothers' conceptions of the ideal infant, ideal male infant and ideal female infant according to age of the infant, race and parity? Will these differences be related to the mother's description and socialization of her own infant according to sex role?

Additional Hypotheses

13. There will be no difference within or between treatment groups as a function of the situation variables of: density and crowding, multiple mothering, number of children, marital situation, disruption, mother's sex-role expectation for the child.

14. Children in homes with higher levels of verbal interaction will be more advanced developmentally, within treatment groups, over those in homes with lower levels of verbal interaction.

15. Girls will be more advanced than boys, within treatment groups.

16. Within the groups receiving instruction in the series, both mothers' and children's development will be a function of the number of completed visits.

17. Children who are reported more often as ill will make less progress than those least reported ill.

4. Procedures

(a) General Design

The major treatment variable was instruction of the mother by the Parent Educator in the stimulation exercises. This instruction was scheduled for once a week, in the home, on a regular basis. The mother was not only instructed in the mechanics of the exercises (see Appendix B) but also in the general attitudes toward seeing them as play, to be engaged in at odd moments when both mother and child might enjoy them. These materials, and some skills in toy-making with paper, encouragement of all forms of play, were presented in such fashion that the mother learned by imitation of the Parent Educator. The mothering role was not to be assumed by the Parent Educator, who was to involve the mother in the actual task.

To test the hypotheses and questions, each family in the original sample from the pilot program (for a geographical picture of the extent of coverage, and description of sample, see Appendix A) was followed until all children reached their first birthday. As babies reached this birthday,

the mothers in the group who originally received stimulation were randomly assigned to the second year stimulation series or no stimulation group. As the original control babies reached their first birthday, the same type of assignment was made. This yielded four main groups: E₁, receiving instruction from the babies' third month to his second birthday; E/C, receiving instruction until the first birthday but not during the second year; C/E, receiving instruction in the second year but not the first, and C/C receiving no instruction in either year.

TABLE 1
TREATMENT PLAN

Group	Final N	Treatment 3 Mo-1 year	Treatment 1 year-2 years
E ₁	36	Series	Series
E/C	36	Series	. .
C ₁ /E	4	Nurse visits	Series
C ₂ /E	21	. .	Series
C ₁ /C	11	Nurse visits	. .
C ₂ /C	16
E ₂	21	Series	Began 7/1/67
C ₃	22	Other stimulation	Began 7/1/67
C ₄	25	. .	Began 7/1/67

In order to investigate whether it was this particular series, or another pattern of equal amount of time spent in the home instructing

the mother, three new groups, (E₂, C₃ and C₄) selected in the same fashion as the original population (see Appendix A), and randomly assigned to series stimulation, "other" stimulation and a new control group, were started in July, 1967. They were drawn from all the eligible babies born in the hospital between May 1, 1967 and October 31, 1967. The two groups of mothers (E₂ and C₃) received instruction until the babies' first birthdays.

The Parent Educators who had mothers in the E/C group were assigned to work with mothers in the E₂ and C/E groups. They were able to do this as the babies in the E/C group reached their first birthday and moved out of stimulation and were dropped from their caseloads. (For time chart see Table 3) New Parent Educators who did not receive training in the series, were recruited for half-time work from underprivileged mothers who were working in Head Start and other early childhood programs. They were assigned on an equivalent caseload basis (one to five for half-time). This plan was followed, rather than employing three new people, so as to control for the personality or other educator variables which might influence results with too few educators. They were trained in concepts of the importance of early stimulation, and developed their own instructional procedures and content based upon their Head Start experiences and their general backgrounds. (see Training section)

The staff ratio, of one graduate student (one-third time) supervisor to three educators, was maintained.

The treatment variables were thus: type and content of instruction (E₂ vs. C₃) length of instruction and timing of instruction (E₁ vs. E/C;

E/C vs. C/E; E_1 vs. C_1) presence of instruction (E_1 vs. $C_{1,2}$, E/C, C/E vs. C).

The dependent variables are: changes in mother and developmental level of the child. Specifics are contained in the hypotheses.

(b) Sample

The original sample was described in the pilot project material in Appendix A. Briefly, it consists of indigent mothers and their babies born Between June 15, 1966 and September 30, 1967 at the J. Hillis Miller Health Center. Mothers were assigned to the experimental or control population on the basis of geography.

(c) Data Collection

The data on the mothers consist of a weekly home visit observation report, called the Parent Educator Weekly Report (PEWR) (see Appendix D for all non-standard instruments), the Rotter Social Reaction Inventory, modified to reflect a fourth grade reading level (SRI), the Markel Voice and Language Assessment (MVLA), the Estimate of Mother Expectancy (EME), the Mother How I See Myself Scale (HISM), and a Final Observation Report including demographic and ecological data (FOR).

The data on the child include the PEWR, FOR, the Test of Performance on Series Tasks (ST), the Goldman Race-Awareness measure (RA), the "Griffiths Mental Development Scale" at age one and the Bayley Scale at age two. It is recognized by the principal investigator that there are no clearly satisfactory measures of intellectual development for this age group, however this deficiency will be overcome in part in that the above standard measures will yield perceptual-motor scores which will allow for comparison across groups. See Table 2 for data-gathering scheme.

Table 2 shows the data gathering scheme. The first year battery consisted of the ST, MVLA, Griffiths and the HISM scale. The second year battery contained the RA measure in addition and the Bayley test in place of the Griffiths. The RA measure was given to a sample of the total population. Fifteen E₁, 16 E/C, 19 C/E, and 14 C/C children constituted the RA sample. Series testing (ST), standard testing and the Markel Voice and Language Assessment (MVLA) were carried out by qualified staff members. The Final Observation Report was begun by the Parent Educators when the babies were 9 months and 21 months of age and completed at one year and 2 years of age. The Parent Educators were taught the administration procedures for the Goldman Racial Awareness Measure (RA).

Parent Educators also administered the Social Reaction Inventory (SRI) during two of the weekly visits. Testing necessitated the presence of a staff member in the home in addition to the Parent Educator. In order to reduce the mothers' discomfort, appointments for staff visits were made and discussed by the Parent Educator with the mother several weeks in advance. The EME, an Osgood Semantic Differential procedure, was administered at 9 and 18 months. Specific procedures for administration of non-standard instruments are described in Appendix E.

TABLE 2

Data Collection Plan
By Babies' Age

Group	Age in Months			
	3	6	9	12
E ₁	PEWR (Weekly)	PEWR (Weekly) ST(I-IV) SRI	PEWR (Weekly) EME	PEWR (Weekly) ST(IV-VIII) MVLA Griffiths HISM FOR
E/C	PEWR (Weekly)	PEWR (Weekly) ST(I-IV) SRI	PEWR (Weekly) EME	PEWR (Weekly) ST(IV-VIII) MVLA Griffiths HISM FOR
C ₁ /E	PEWR (Monthly)	PEWR (Monthly) SRI	PEWR (Monthly) EME	PEWR (Weekly) ST(IV-VIII) MVLA Griffiths HISM FOR
C ₂ /E				PEWR (Weekly) ST(IV-VIII) MVLA Griffiths HISM
C ₁ /C	PEWR (Monthly)	PEWR (Monthly) SRI	PEWR (Monthly) EME	PEWR (Monthly) ST(IV-VIII) MVLA Griffiths HISM FOR
C ₂ /C				ST(IV-VIII) MVLA Griffiths HISM
E ₂ C ₅ (MIC)	PEWR (Weekly) SRI HISM			PEWR (Weekly) ST(IV-VIII) Griffiths HISM SRI FOR
C ₃	Modified PEWR (Weekly) SRI HISM			Modified PEWR (Weekly) ST(IV-VIII) Griffiths HISM SRI FOR
C ₄	SRI HISM			ST(IV-VIII) Griffiths HISM SRI MVLA

CHAPTER 2
The Parent Education Program
Selecting and Training the Parent Educators¹

Many reasons can be given for choosing paraprofessionals for work with environmentally disadvantaged populations. Our assumptions were that paraprofessionals:

1. would be more able to establish trust than a professional.
2. could open lines for feedback that remain closed to the professional.
3. could collect data not available to the professional.
4. could enter into new situations with a disadvantaged person without the ingratiating falseness often present when professionals try to establish rapport with a person from a vastly different background.
5. would be attuned to cultural clues often missed by professionals.
6. would less frequently, than a professional, offend the sensitivities of a disadvantaged person.
7. would make it easy for a mother to relax and be "natural."
8. would not have to translate their ideas from one type of language to another.
9. would not be shocked or offended by many of the things that happen in the home nor overpowered by immediate but superficial problems.

These assumptions led to our belief that paraprofessionals could be effective workers, especially with the disadvantaged members of our society. However, they in no way supported the idea that paraprofessionals were naturally ready to assume the more technical sides of newly created

¹This section was initially prepared by J. Ronald Lally

positions. Training was needed and adequate selection criteria were essential. The next section will discuss two methods of selection which we have used at different times in our program.

Selection

Perhaps one reason people have problems selecting paraprofessionals is that they do not know the job that needs to be done. For instance, a carpenter has specific tasks he has to fulfill in order to do a good job, he knows them and his employer knows them. But if a person has never worked as a paraprofessional before and the person hiring hasn't hired many paraprofessionals, both do not really know what skills and what type of person is needed. We were faced with just this problem. We were creating a new role, and had no experience to utilize. For this reason, we could not specify competencies. We expected that role definition would emerge from cooperative efforts on the part of the parent educators and the professional staff. Therefore, our first approach to selection in August, 1966 was for general characteristics.

First Approach - Selection for General Traits

Recruitment was the first task and the major recruiting technique was word of mouth. Head Start personnel, the one Negro school psychologist in town, (Miss Susie May White), Negro ministers, Salvation Army people, and Public Health nurses were all informed about our needs. The Florida State Employment Service not only provided interview space and its record keeping facilities but also engaged in recruitment. Approximately 75 women responded.

The staff tried to develop a set of criteria for selection of Parent Educators and weighed such questions as age, marital status, experience with babies, intellectual capacity, personality, reading and writing skill, and so forth. But at the time interviewing began it was not clear what the major criteria should have been. Only one rule was firm. Because of the nature of the job every person hired had to have a car that was available to them from 8 to 5 Monday through Friday. We had planned to select only high school graduates, mothers and women under forty, but in each case we altered our plan. Table 4 presents background information on the Parent Educators finally selected. Previous jobs and work with children, Head Start experience and recommendations were taken into consideration but no guidelines were set to choose a person with one type of experience over a person with another type of experience. All other criteria for selection were geared to pick the type of woman we thought would work well with young children and communicate well with adults. We tried to select women who had and enjoyed their own children and felt the need for a change in the way disadvantaged children were being brought up. In addition, we tried to select women we felt could interact easily with other adults and those who were flexible enough to change some of their old ways of behaving.

Open ended questioning was the main tool with which we tried to gain this information about the prospective Parent Educators. In addition, their ability to communicate verbally in the interview and comprehend a short written description of the project was noted. About one half hour to forty-five minutes was spent in a one-to-one interview. The notes from this interview were brought to staff meetings, and

TABLE 4
THE PARENT EDUCATORS

No.	Race	Marital Status	No. Children	Recruiting Source
1	N	12	2	School Counselor
2	N	12	0	School Counselor
3	N	JC	1	Head Start
4	N	12	3	Head Start
5	N	12	6	FSES
6	N	12	4	Head Start
7	N	12	1	Head Start
8	N	2-Coll.	1	Head Start
9	N	11	2	PH Nurse
10	N	JC	1	Head Start
11	N	3½-Coll.	1	Home Dem. Agent
12	N	12	2	Salvation Army
13	W	9	4	Another Par. Ed.
14	W	12	3	Informal
15	W	8	7	

recommendations were given by the interviewers as to whom they thought were the best qualified applicants. Some people were selected at these meetings while others were called in for another interview before final decisions were made.

The Parent Educators had such previous job experiences as hair-dressers, barbers, domestic workers, Head Start workers, field workers, and OEO work-study program employment. Their husbands were basically engaged in unskilled and semi-skilled occupations. Although the fact of high school graduation set the Negro Parent Educator to some degree apart from her expected clientele, the general work background and living conditions resembled those of the mothers with whom we expected her to work. The white Parent Educators were less well educated, older and with generally more work experience. Recruitment of white personnel was a good deal more difficult with far fewer applicants and thus far less choice.

Second Approach - Selection for Specific Skills

When we employed additional Parent Educators, after a year of operation, roles had become more clearly defined and the need for specific skills had become obvious. The additional handicap of no time for extensive pre-service education made us change our selection criteria so that people were picked who could very easily master the techniques of the job. The focus of the interview changed as the interviewer began to look more carefully at other areas besides the ones described in the first approach.

The prospective Parent Educator was exposed to many of the forms that she would be expected to collect and after a brief description of

what was to be done with them, she was asked to fill them out. This was also done with computer coding sheets and some basic mathematics problems. Role playing was used as a tool to find out many things about the background of the prospective Parent Educator. One situation commonly used placed an interviewer in the role of a mother being enlisted into the project by a Parent Educator whose role was played by the prospective Parent Educator. In this situation we could ascertain not only the verbal skills of the applicant but also many of her ideas about such issues as child rearing, discipline, and the nature of intelligence. Other role playing situations were used to find out how she handled responsibility and her use of the clock and the calendar. Selection was based on the appropriateness of the applicants' responses in these situations as judged by the Project Field Director who conducted all of the interviews. Three women were selected in this manner and moved very quickly through training to field work.

Training

The type of training we found most productive included training for the panorama of changes the Parent Educator had to make both affectively and intellectually in her new role. The narrower goals of training such as specific training for particular skills, became a part of the transition from trainee to Parent Educator. To aid in this fundamental development the training staff had to remain flexible and willing to change their training plans as the needs of the Parent Educators changed.

It became evident very quickly that lectures and large group discussions about abstract ideas were not effective teaching tools. From time to time when we used the lecture method people were found falling to sleep, doodling on pads, or passing notes.

Mention of a few of the techniques used should convey the style of training found most effective: 1. role playing, 2. direct work experiences with mothers, children and materials, 3. field experiences in interviewing and teaching, 4. breakdown of presentations of abstract ideas into small capsules complete with concrete examples and small group discussion with clarification, 5. over training in areas where understanding was deemed essential, 6. small group sessions geared to airing and discussing problems, complaints, suggestions and week changes. These techniques were employed through all the different training situations although emphasis changed as the paraprofessionals moved from one phase to the next. A more detailed description of the various phases follows.

Intensive Phase

The initial training phase consisted of a five-week program conducted by an interdisciplinary team drawn from education, child psychology, social work, and nursing (September-October, 1966). The focus was on the exploration of ways of working with mothers so that a mother would understand: (1) how to work with her infant and toddler, (2) why it was important for such activities to be provided, and (3) why it was imperative that the mother provide these activities herself rather than depend on the Parent Educator to teach her child for her.

We believed it was necessary to insure that the trainee realized that her opinions, ideas, and attitudes were important to the success of the program. Each part of training, whether lecture, large group discussion, small group discussion, role playing, field trips to homes

and hospital wards, interview training, observation practice, or work with dolls and/or babies and mothers was based on this fundamental belief. We believed this attitude of open two-way communication was essential both for the prospective Parent Educator and the training staff. We believed that the trainees should be treated as professionals and held responsible for different areas covered during the training period. Therefore, they were neither coddled nor checked upon continuously.

Most of the training periods were based on problem-solving activities. The topics discussed were problems of basic concern to both staff and trainees, usually derived from questions of the trainees during a role-playing session or some other practice exercise. The most effective training procedures were operations as close to reality as possible. Lectures were brief and usually served as explanatory beginnings of activity exercises. Motion pictures were used for training in objectivity of observation. The ability to show a scene over again and again had obvious advantages for this type of training. We found role-playing situations most useful to teach the series materials, interview techniques, and observation practices. The use of strange (to the trainers) mothers and babies to act as subjects was of great help because it approached the real life situation more closely. It was during these role-playing sessions that we discovered many of the hazards which would have to be overcome. Some of them were: (1) living and working conditions that seemed to prohibit productive training of infants, (2) special safety considerations in the homes, such as splintered floors, broken glass in the yard, undesirable animals present, (3) superstition and voo-doo beliefs that were in direct conflict to our

purposes; for example, the beliefs that a precocious child dies early, and that it is dangerous for a child to look in a mirror before his first birthday.

As training progressed, the trainees became more critical of their own and other trainees' skills. They were by far their hardest judges. For the most part, criticism was constructive and helped raise the level of trainee competence. Awareness of personality factors and habits which might block effective functioning were brought to light in group dynamics-type sessions. Procedures suggested to us by Dr. Robert Soar that were created at the Temple Group Dynamics Center were used in the sessions. These sessions enabled trainees and staff to see the roles they played in discussion groups. The increased awareness of an individual's impact on the total group helped to make training sessions run smoother and enabled more people to voice their ideas.

The bulk of the time spent in training was used to make all members of the team comfortable with and knowledgeable of all the exercises to be presented to the mother. Our aim was a complete understanding and functional knowledge of the series materials so that any question asked by the mother could be answered easily. Such mastery has enabled the Parent Educator to spend her time in the home relating to the mother and observing the situation without worrying about her own grasp of the material. The following order of activities were pursued:

1. Each series of exercises was explained and reasons were given for use.
2. Discussion sessions were held until all initial problems were ironed out.
3. Demonstrations of the exercises were conducted with a doll.
4. Practice with dolls by trainees was conducted in small groups.

This usually brought more problems to light and led to ideas for more efficient ways for presentation.

5. Discussions of the practice sessions were held.
6. Babies were taught.
7. A final discussion session was held to clarify the new methods and means of presentation of the exercises which had evolved from the original thoughts, through practice, to their new form.

By the end of the intensive period, each Parent Educator knew every exercise to be used, the reasons for its selection as part of the series, and what it would do for the baby. Most important of all, she knew how to teach mothers to teach their children the different exercises without conveying the idea that the mother was being "taught at" or that she didn't know how to take care of her baby. Along with the concrete work experiences the paraprofessionals received operating guides which were discussed when distributed and reviewed periodically. Two examples of these guides follow below.

1. Training Procedures

"Begin training when the baby is 3 months old.

First Visit:

Have the mother present all the exercises in Series I to the baby and see if the baby can do them. Check off the exercises he can do in your notebook.

Second Visit:

Teach the mother the first two exercises that the baby couldn't do when it was tested the week before. Teach these exercises in detail and make sure that the mother knows how to do them correctly. Write date taught in notebook.

Third Visit:

See if the baby can do the two exercises you taught last time. If he can, write in the date of success and teach two new exercises. If he can't do the exercises see if the mother really knows how to do the exercises. Record under comments if the mother could or couldn't do the exercise. Teach one more exercise to the mother and spend the rest of the time teaching her how to make toys, play games with the baby, and/or sing songs.

Only have the baby practicing three exercises in any one given week. Don't teach the baby new exercises if there are three he hasn't succeeded on. Each time the baby has success on an exercise teach the mother a new exercise that day. Do this until you finish the series. Follow the same rules for Series I, II, III, IV."

2. Approaching a New Experimental Mother (at 12 Months)

"Parent Educators will contact and interview the new mothers that have been assigned to them. These people will be mothers with young babies who have never been contacted; mothers of babies who have been working with Mrs. Bradshaw, and mothers from the control group whose babies are 12 months old and have already been tested by staff members.

It might be helpful to read over the paper PEP - Parent Education Project before you go into the home so that it will be easy to explain what we are doing. If you feel the mother is interested you can leave a copy with her. Make sure that she signs the release form and it is turned in to your supervisor.

The mothers that have never been contacted before will not be any different from mothers you have interviewed in the past. The mothers that have been working with Mrs. Bradshaw will not know very much about the project and will need it explained to them. The other control mothers will have to be convinced of the advantages of participating in the project.

It is very important when you go to interview a new mother, that you know how old her baby is and what contact she has had with the project in the past so that you will be better able to gain her support and consent."

Another method we found to be effective in helping the paraprofessionals understand the project better was to reduce many of our ideas and goals to very simple language. This not only aided understanding on the part of the paraprofessional but it gave her tools to use in her work with mothers in the field. One example of this method is the booklet "Intellectual Stimulation for Infants and Toddlers" which was the curriculum for the project. Another example follows below.

3. PEP - Parent Education Project

"The Parent Education Project is trying out some new ideas. We believe that when a baby has lots of different kinds of things to see, to hear, to feel, and to do his mind will grow faster and better than it would if he had only a few things to see, hear, feel, and do. We've made a plan of things to do with a baby because we believe that the baby's mind needs things to make it grow just as much as his body does. Why do we think so? First, let's think about how the body grows.

Everyone knows that children who are not fed at all will not grow - and nearly everyone knows that if a child is fed only a couple of things - like, say, grits and candy - without milk, vegetables and other foods - he will not grow as strong and as well as he could if he had a variety of kinds of foods. Of course he won't grow to be a giant no matter how much or how well we feed him, but the way he is fed makes quite a difference in how healthy and strong he will be. Now let's think again about the mind and how it grows. If a baby has very little to see or hear or feel or do his mind won't grow much at all. We know this is true because some babies in poor orphanages who have no one to play with them, show them things, and move them about, do not learn to think very well. Their minds do not grow as well as those of other babies who have had many different kinds of things to see, hear, and do. From this we know that the mind does need something to make it grow just about in the same way the body does.

Of course it would be just as bad for a baby's mind to be all the time in a place where there is too much noise and activity as it would be for the baby's body if we tried to feed him gallons of milk, boxes of cereal, and cartons of oranges all at one time. What a baby's mind really needs to help it grow best are lots of different sights, sounds, things to feel and do - but it's best if they can happen a few at a time so that the baby can learn as much as possible about each thing without getting it mixed up with a lot of other things.

The Parent Education Project has made a plan for things to do with a baby that will help it's mind to grow. We have made up a "series" of special things for a mother to do with her own baby. If a mother does

these things with her baby at times when he is feeling happy and comfortable and in a place where he isn't confused by a lot of other noises and people, his mind will be helped to grow. One of the things the Parent Education Project is trying to do is to find out just how much this special "series" of activities will help in making a baby smarter than other children whose mothers do not do these things. This is really what the Parent Education Project is all about."

During the last week, the trainees were sent to the Shands Teaching Hospital of the University of Florida to conduct initial interviews with new mothers. Immediately after the interview, the trainee reported to a small group of fellow trainees in one of the conference rooms in the hospital. These groups were used to relax the trainees before and after their initial contacts with the mothers.

Field work started gradually. Each training staff member was assigned three trainees, now called Parent Educators, to supervise. For the first week of field work the Parent Educator was in the field in the morning and consulted with her assigned supervisor in the afternoon. The supervisors were doctoral students on 1/3 or 1/2 time basis. Those on 1/2 time also had other research tasks, so that the ratio of full-time supervisor to Parent Educator was 1:9. These consultations dealt with questions by the Parent Educator about problems. Supervisors did not give solutions to the problems, but explored with the Parent Educator different ways of attack. Role reversal situations were used in which the Parent Educator tried to put herself in the shoes of the mother she had just visited. The role of the supervisor will be explained more fully in a future section.

Intensive training terminated with a Parent Educator and supervisor visit to each assigned home. This visit was used as a final aid in observation techniques (the supervisor and Parent Educator filling forms together) and as a means by which the supervisor could get better acquainted with his Parent Educator's mothers.

In-Service Phase

Each Friday was set aside for in-service training. Individual conferences were held, specific problems were discussed and brought, if possible, to solution. Study in pertinent subject areas (child development, interpersonal relations, disadvantaged families and related community functions) were pursued in large groups, small groups and by individuals. Visits were made to related projects, day care centers, nurseries, pre-schools and the like. There were guest lectures from staff members of similar studies at different universities.

Authorities from our own campus in the areas of anthropology, speech and hearing, nursing, clinical, social and educational psychology were called on not only for instructional help in the broad area of general knowledge, but also to aid us in the solution of specific on-going problems. Consultants were used to help with particular project problems, ranging from a more scientific means of observing speech patterns to the way a mother can find financial aid for her crippled child.

Motion pictures were found to be effective when selected with a specific purpose in mind and discussed during or after their showing. (See end of this section).

Many of the Friday sessions were spent in explanation and discussion of new research materials to be used. Since the Parent Educators have

been in the field, no fewer than eight such tools have been created and administered.¹

The role of the Parent Educator in the development of these tools was a critical one. A basic problem in attitude measurement is the language gap between the psychologist and the disadvantaged mother. The Parent Educator's knowledge of both aided in the selection of appropriate words and items. A second concern is the attitude of the mother toward measurement. Here again, the in-service education activity aided in both helping the researcher understand the problem and the Parent Educator to overcome it.

Since many records were kept, part of each Friday was spent in individual consultation with a supervisor going over forms, discussing problems, and staying current with the flow of paper work.

In summary then, the in-service day, an example of which is presented in Figure 1, had three major subdivisions:

1. General Education. This was designed to gradually broaden knowledge in the areas of child development and human dynamics and upgrade the level of functioning of each Parent Educator through a better understanding of herself and the world around her.
2. Specific Task Education. This provided for a continued emphasis on competence in objective observation, accurate record keeping, improvement in methods of teaching and testing, more precise data gathering and the many other skills necessary for the fully functioning child development trainer.

¹Some of these are available in a package, "A Portfolio of Maternal and Environmental Measure," from the Institute for the Development of Human Resources, University of Florida.

3. Feedback and Dissemination. The collection of the specific anecdotal information which came in each week through small group discussions and individual meetings allowed for clarification of directives and changes in tactics that had a bearing on the effective operation of the program.

An additional part of our in-service training was an occasional trip to another project. Some of the trips made were to visit:

1. Project Know How, Florida State University, Tallahassee, Florida
2. The Learning to Learn School, Jacksonville, Florida
3. Head Start Orientation Training Sessions, University of Florida, Gainesville
4. Human Development Center, J. Hillis Miller Health Center, Gainesville
5. Sunland Training Center, Gainesville
6. The Northeast Development Day-Care Center, Gainesville
7. Bell's Nursery School, Gainesville
8. Hawthorne Day-Care Center, Hawthorne, Florida
9. Newberry Day-Care Center, Newberry, Florida

Training an Individual Parent Educator

One area not covered earlier was the training of individual Parent Educators who were hired after the program was already in progress. These people, as stated earlier in the selection section, were selected because of the skills they possessed. They needed less fundamental training but still had to receive a good foundation in the curriculum, data collection assignments, and the philosophy and purpose of our program.

Figure 1

A Typical In-Service Day

Approximate
Times

8:30	<u>Administrative Procedures:</u> collecting travel vouchers and time cards, checking the mail boxes for messages, etc.
9:00	<u>Specific Education:</u> role-playing connected with new stimulation materials; practice with a revised computer coding form; clarification of data collection methods.
10:00	<u>General Education:</u> a discussion of infant intelligence tests and their value; a lecture on self-concept and ways of becoming more perceptive.
11:00	<u>Specific Education:</u> a discussion of the up-to-date results of the babies on "Griffiths Intelligence Scale" and what this means to us as teachers.
12:00	<u>Lunch</u>
1:00	<u>Feedback and Dissemination:</u> a general staff meeting including all members of the staff; professionals, paraprofessionals, and graduate students. Information discussed included changes in the collection data of specific materials, announcements of interest to all and a period for open discussion of any topic any member of the group thinks should be brought to the attention of the total group.
2:00	<u>Specific Education:</u> <u>General Education:</u> <u>Feedback and Dissemination:</u> <div style="display: inline-block; vertical-align: top; margin-left: 20px;"> <p>Continuous running of Harlow's movie, "Mother Love" for the people not in small group meetings or individual conferences. Toy and mobile making.</p> </div>
	<u>Individual Conferences:</u> Parent Educator and supervisor clarification of functions for the next week and reports on activities of the preceding week.
	<u>Small Group Conferences:</u> Supervisor with all his Parent Educators talked about similar problems and figuring out solutions.
5:00	

Their first few days were spent in the office becoming familiar with the skeleton of knowledge they needed for minimum functioning. During this time experienced Parent Educators, members of the research staff, secretaries, graduate students and others helped familiarize the new worker with the particular parts of the program that were their respective specialities. As soon as possible the new Parent Educator was sent into the field with staff testers and experienced Parent Educators. After a few visits the experienced Parent Educator let the new Parent Educator do some of the work and had a conference with her after the completion of the visit. The new Parent Educator was also expected to fill out an observation form at the visit's end and this was compared with the experienced Parent Educators. Both reliability and understanding of the form were checked during this conference.

Her first in-service training day was spent going to all the different group meetings at which children whom she had visited were discussed. It was also spent in special sessions with her supervisor to whom she had now been assigned and members of the training staff who might be able to help with her particular problems. She was usually assigned a few families of her own for her next weeks' work but this depended upon readiness reports of the Parent Educators and others who worked with her. For her first few weeks her supervisor remained available to her at all times and went on quite a few home visits with her. As her competence and confidence increased, supervisory activity decreased.

This method of training has worked very well for us. It fit into the learning by doing notion. It forced us to keep things concrete and seemed to complement the learning styles of many of our Parent Educators.

It most often lead to a fully functioning Parent Educator in about four weeks. It also served as a useful review and refresher course for the Parent Educators who took part in the training.

One group of Parent Educators, those that worked with the C₃ (trained with a different curriculum) group families, was trained apart from the Parent Educators who worked with the experimental groups. The methods by which they were selected and trained are found in the next section.

Selection and Training of the C₃ Parent Educators²

The Parent Educators were selected after thorough interviews. They were all high school graduates, mothers, and had a high degree of interest in infants and the development of materials for helping other mothers. These women held a variety of jobs but all included at least one other job in which they dealt directly with children. These included such jobs as teachers' aide, schoolbus driver, aide to children in home for mentally retarded and housekeeping which included child care.

Pre-Service Training

The Parent Educators were most concerned about the data collection and they were given intensive training in this area. This proved to be difficult for them and every effort was made to simplify the data collection tasks whenever possible.

The pre-service phase was four weeks long and was divided into the following major areas: (1) developing stimulus materials for the project, (2) learning how to teach these materials and (3) instruction in data collection.

²This section of the report was prepared by Mrs. Judy Block, the coordinator of the C₃ group.

The first two weeks were spent in studying infants for the development of tasks for the home visits. Each Parent Educator worked at home with neighborhood youngsters and brought her tasks in for group consideration. The supervisor led the discussions on these tasks and interjected information pertinent to this development. However, the information was of a general nature concerning infants and learning and was not intended to approve or reject tasks. The supervisor restrained herself, allowing the Parent Educators to determine the usefulness of task materials. (See Appendix C for tasks)

During the remaining two weeks, the Parent Educators drilled on teaching the series materials and made all of the equipment necessary for this instruction.

While the tasks were being developed and the trainers schooled in instruction, they went out on their own time to meet the families with whom they would be working. They felt that it would be better if they would get to know the babies before the first training session.

In-Service Training

In-service training for the C₃ group of Parent Educators consisted of two types of training: (a) Group Training in a four hour session each week and (b) Individual Sessions with the Parent Educators and their supervisor.

Group Training

The total group consisting of six Parent Educators and their supervisor followed this schedule each week:

8:00 - 9:00AM	Data collection and distribution
9:00 - 10:45AM	Review of currently used series materials and discussion of problems
11:00A- 12:00PM	Guest speaker or supervisors' report on new or pertinent materials

Each week the Parent Educators reviewed the currently used series materials and discussed all the ways of breaking down the concepts for the easiest teaching methods. In order to achieve this, they took turns role playing the parts of mother and infant as well as trainer. They criticized each other and learned to watch for the pertinent behavior and analyze it as a team.

Their concerns included more than the project task of teaching mothers to stimulate their infants. They included such topics as:

1. Interpersonal relations and how to improve them.
2. How good physical health and mental health are related.
3. Community services and how to obtain them.
4. Child growth and development patterns.
5. How and when children learn to talk.
6. Infant intelligence tests and their uses.

They raised numerous issues about ways of helping infants grow and learn.

The third segment of the training session consisted of lecture/discussions by various faculty members and guests from the community. These persons were selected to answer questions brought up by the Parent Educators at previous meetings. A sampling of these lectures might include:

1. How women develop their unique mothering styles
2. The infant from birth to twelve months
3. How language experience affects later speech development
4. Superstitions and how to deal with them.
5. The ABC's of budgeting
6. Local agencies and what they offer
7. Ways of using commodity foods and many many more

Individual Training

The second type of in-service training consisted of individual conferences and field trips to the homes of the families in the project.

The supervisor went with the Parent Educators into the homes of each of her families. These visits were a part of the Parent Educators regular weekly visits. On route to the homes the trainer would give a review of the progress with the family and mention any problem areas for the supervisor to observe.

Following the home visit the Parent Educator and supervisor would discuss the Parent Educator Weekly Report - PEWR, the actual teaching, interpersonal relationships, and the next course of action.

These individual sessions were the backbone of the training in the C3 group. The Parent Educators felt that their supervisor was well aware of their work. They felt relieved that they could share their problems at the concrete level and show their successes as well.

Problems Encountered in Training

In our two and one half years of operation we have had to cope with many situations we did not anticipate and for which we had no plan. Many of those situations impeded the functioning of the program and made for difficult times in training and field work. No standard format was designed to handle the situations. All of the many facets of the training program such as small group work, individual sessions, role-playing, were utilized to help reduce and solve the unexpected problems. Many staff meetings were conducted and a great deal of time was spent trying to find the best way to handle those situations. Listed below are some problems with which we had to come to grips and some of the ways we dealt with them.

The problems can be divided into two groups. The first group relates to the Parent Educator's reaction to our particular type of project. The second group relates to the Parent Educator's reactions to steady "University type" work. Keep in mind that although some of these problems are similar to those of teachers and graduate students, they are not identical. They cannot always be handled in the same way because the Parent Educator is different from the teacher and graduate student in background, goals and motivation.

Problems related most clearly to the Parent Educator's reaction to the "Early Child Stimulation Through Parent Education Project":

1. Difficulty in getting abstract ideas communicated both from training staff to Parent Educators and from Parent Educators to mothers.

At first it seemed that this problem was not too great. The Parent Educators acted as if they understood the concepts we were exploring. But when ideas like fixed intelligence and pre-determined development were questioned or elaborated upon we found two things happening. Most people couldn't generalize from the concept to practical application. On one hand, they could think that intelligence was completely inherited and on the other hand that early stimulation would help a great deal to make a child more intelligent. A second reaction to a new concept often brought instant bending of the concept to fit a persons' own set of beliefs. This was made evident to the training staff when the concept came back to us completely changed in meaning and in support of a persons' actions. One can't help but think of Festinger's ideas of cognitive dissonance/consonance.

Our most successful attack on this problem was to give each Parent Educator as many concrete experiences as possible in which she could expand her understanding. Practical problems were constantly related to theory and theory was linked regularly to the day to day project operations.

2. Missionary zeal which later turned to disillusionment or boredom with day to day functioning.

Motivation during the initial training phase was very high. The Parent Educators saw themselves in a new and exciting role which had social consequence. The staff became aware very early of the fact that the Parent Educators were seeing the changes they would bring about as tremendously significant and almost immediate. Discussion groups were conducted which dealt with the reality of long range rather than short range changes in the behavior of children but these were mostly ignored. Once the Parent Educator began her field work this enthusiasm lagged. She came in contact with resistant mothers, data collection chores and children whose ability varied despite her energetic training.

Movies on infant deprivation, developmental charts and discussion of some of the intellectual growth that was evident in the work they had completed with experimental children helped to buoy the Parent Educator, but her disillusionment with the role she had originally seen herself performing dissipated slowly. Many Parent Educators blamed themselves or the materials for this lack of rapid intellectual growth. In both of those cases individual conferences were scheduled to help the Parent Educator work through those feelings.

5. Rigidity in following directions that the teaching staff thought common sense would allow in particular cases.

In some respects our training program worked too well with a few Parent Educators. Supervisors found that some Parent Educators would go through the particular exercises selected for the week no matter what extenuating circumstances arose. Children were awakened from naps, and trained when sick. Homes were visited and exercises completed even when a personal family tragedy had just occurred.

These problems were easily handled through weekly in-service meetings. They usually occurred because the Parent Educator was trying so hard to do what she thought was a good job of training that she overlooked some of the very things that she was most skilled to do i.e. understand the problems of the family and treat the child in a loving way. Once we reemphasized the importance of sensitive and sensible approach to her job of training their functioning with the children became much more natural and therefore more effective.

A more difficult problem to master was the Parent Educators use of the series manual. It was found that a child would be held on an exercise with the steps repeated rigidly, until maybe a month later, he would succeed on it. All the while he might not have had the faintest understanding of what was expected of him or the ability to comprehend each step.

A great deal of time and effort was expended in coping with this problem and it is still not solved. The decision was made to break all the exercises down into very small pieces so that the Parent Educator would begin with something the child knew and enjoyed

doing and could then move on to the completion of the exercise. This called for the Parent Educator's assessment of the child's abilities and the selection of the particular task that would match these abilities.

All the Parent Educators were asked for their suggestions as to how to break up the exercises into smaller segments. Children were brought in to the center so that both assessment of a child's abilities and the matching of tasks to these abilities was practiced under supervision. Gradually behavior toward the children changed and is still changing as the Parent Educators become better teachers.

4. Reluctance to accept research as well as service responsibilities.

The Parent Educators saw themselves primarily as teachers and secondarily as researchers. They felt that data collection was not as important as teaching and many times got in their way. It was not as easy or as much fun to fill out observation forms as it was to work with mothers and children. Most Parent Educators didn't like to do paper work and each new form brought with it a rash of complaints and reasons why it wouldn't work.

The importance of research was constantly stressed as was the fact that if no research data was collected there would be no funds granted for teaching. By and large though, the collection of data was unpleasant to the Parent Educator, she had to be guided by a strict definition of her duties and constant supervision by the data process staff to perform satisfactorily.

5. Acceptance of the freedom of field work with only partial acceptance of the responsibilities.

Some found it very difficult, especially at first, to keep on the job during the week. They did not have to report to the office each day. As long as they made all their home visits successfully and completed all their forms, their job was considered completed for the week. Some women began staying home on Monday and making all their visits on Tuesday, Wednesday, and Thursday. The training staff had no knowledge of this when all the visits were made, but after a while some mothers were not visited. After consultation and review of the data collection dates, it was found that Parent Educators were taking a day or part of a day off so that if they had some field complication occur during the remaining time, mothers not at home, car trouble, etc., they would miss that week's visit.

These cases were handled carefully. The training staff realized how new this freedom was to many. Those Parent Educators who could not handle this freedom, three in number, were dismissed after considerable educational efforts were made. Others were supervised more closely while most came to see their work as more of a professional responsibility than a job.

6. Resistance to changes in the program from that which was presented in the original pre-service sessions.

Because of the nature of the program new and better ways were often constructed to collect data, deal with field problems and teach curricula. Interested professionals joined the original staff and planned to research previously unexplored areas.

Many Parent Educators saw these changes as an additional burden. Some felt that their job was getting to be bigger and they weren't sure if they could handle it. Others saw the changes as giving them extra work to do that they hadn't bargained for.

Each addition to the project was discussed with the Parent Educators in large group meetings. Many ideas were revised after these meetings to better fit the conditions in the field. Other ideas were never acted upon for discussion made them seem impractical or too opposed to the usual operation of the project. Each new course of action was explained and its purpose for inclusion was elaborated upon. People with strong objections voiced these opinions and in one case, the implementation of the Racial Awareness Test, began work on their own measure to find a better way to test color and race awareness than that in the proposal. This effort did not result in a successful test and actually made the people who worked on it more aware of the difficulties of test construction.

7. Lack of patience with some case families who did not cooperate and difficulty in handling the subtle interpersonal situations that arose in the field.

We found that some Parent Educators came to think of some families as completely hopeless. Those Parent Educators were convinced of the value of the project and they couldn't understand why people wouldn't be willing to accept their help with open arms. Other Parent Educators became so involved in the job that it was difficult for them to see the needs of the person with whom they were dealing.

Role playing was used in both these instances. The Parent Educator was told to shut her eyes and try to put herself in the skin of the mother with whom she was having a problem. She was asked to feel the marital situation, home conditions and personal inadequacies of the woman. She was then visited, in her role, by another Parent Educator. She was asked to constantly react as the other woman. When the brief play ended she often had a better understanding not only of the mother but also of how she looked to the mother.

Another method used effectively was meetings of small groups of Parent Educators discussing their problem cases. In these meetings the Parent Educators would share plans of attack and suggest to each other different ways of coping with these problems.

8. Strong identification of some Parent Educators with the professionals rather than with peers, particularly by the older women and the white women in the group.

This problem arose the first day of training and has continued with a varying degree of intensity throughout the project. It has resulted in clique group formation and split allegiances among the Parent Educators. Many techniques were tried; individual consultation, sensitivity training, rejection by professionals, and all seemed to fail. Only recently has this problem lessened. The professional staff has vastly grown and changed over the years. This fact seems to bind the Parent Educators to each other more than to this large and partly new group of professionals.

9. A feeling that some of the professionals could never understand what was happening in the field and therefore make unfair research demands and be difficult to work with.

This problem was not as great as might be expected but was very visible. A frequent complaint was that some professionals never visited the homes but yet created research tools to be used in them. Some of the Parent Educators felt that this was not a very scientific way of behaving and voiced this at meetings. The staff agreed with the Parent Educators and consulted with the scientists who were working in this manner and impressed upon them the importance of field visits as a prerequisite to assessment and data collection requirements.

Other Parent Educators felt that it was beyond some professionals to really understand what was happening in the homes and that even field visits wouldn't make them much more perceptive. Not much that was done helped to change the Parent Educators minds but most accepted this situation as a fact of life, though not a happy one.

10. A desire to work directly with the infants rather than with the mothers.

This desire sprang from two reasons. The first was that they enjoyed working with the infants more than the mothers because they were teaching the tasks directly and obtained a greater feeling of accomplishment when the child succeeded on a task. The second reason was that some mothers did not work with their child during the week and the Parent Educators wanted to help these children. These mothers sometimes made it very difficult for the Parent Educator to function. They would not pay much attention to the training or would

not be home at appointment time. This situation even heightened the desire of the Parent Educator to leave these mothers out of the training and work with the child directly.

This feeling was in direct conflict with the philosophy of the program. The Parent Educators visited the home only one hour a week and the professional staff felt that not much would be accomplished by someone using only one hour a week to work with the child. One of the main purposes of the project was to change the life style of the mothers so that they would incorporate these games and tasks into their day-to-day functioning and use them not only during the week with their infant but also with their future children.

The importance of the mother to the project was constantly emphasized. Conferences were held and plans made to get non-cooperative mothers to cooperate. Research was cited and explained which seemed to prove the importance of mothers to the intellectual growth of their child. Lists were made of mothers who were "with it" and "not with it" and the "Griffiths" scores and twelve months on these groups were passed on to the Parent Educators. They showed that the "with its" scored higher than the "not with its" and that the "not with its" were as low as control children.

Still, real problems existed. Some mothers remained uncooperative. Others passively accepted training but actively did little. For these reasons and others the Parent Educators lobbied strongly for more attention paid to the children. Partially as a result of their feelings, the Backyard Center, Project, the longitudinal extension of this one includes small group work with children for four hours a week in addition to the home visit with the mother.

11. Behavior by professionals which detracted from a harmonious training operation.

We professionals often assumed that the Parent Educators had a base of knowledge and acted from this base only to later find that it wasn't present. We changed our minds and altered decisions as work developed. We expressed ideas in too ambiguous or abstract fashion and we disagreed with each other in discussions we viewed as professionally proper but were viewed by the Parent Educators as causing conflict or confusion.

The Parent Educators submitted a list in April, 1967 (during the pilot phase funded by the Fund for the Advancement of Education) which indicated their concerns. This list follows:

Training Ideas

We, as Educators, feel that we need:

1. more reading material on other projects of this type.
2. to talk more with the group on a certain topic while being recorded.
3. to build our vocabulary on words essential to the project.
4. to learn to be more patient with mothers who dodge or deliberately miss appointments without a good or understandable explanation.
5. more film strips on Child Development.
6. a short statement in everyday language of the aims and goals of the Parent Education Project.
7. lecture sessions (Parent Educators read about a subject concerning the project and give lecture).

8. to form some sort of diplomatic way of informing mother that infant needs less persons present during training sessions.
9. to have role-playing with some unknown persons or staff members (explaining project).
10. to know how to get mothers to understand that the baby's attention would be greater toward the exercises if no one else was in the room.
11. to bring in interesting articles from magazines and/or papers concerning early childhood and discuss it with the group.
12. ways to create enough interest in the mothers to get them to work with the babies between visits.
13. a discussion on how to get mother to secure materials for training baby instead of keeping materials furnished by project.
14. theory of what is to be accomplished through training.

Consultants

1. Dr. E. A. Ringwall from the State University of New York at Buffalo, who aided us by helping make our exercises and approach more sensitive to language learning in young children.
2. Mrs. Pearl Drane, Associate Director of CDGM, Jackson, Mississippi, who assisted us in getting our parents involved in our program.
3. Dr. Donald J. Stedman of Peabody College, Nashville, Tennessee, who helped us in research design and in series material.
4. Dr. Judith Phillips of Peabody College, Nashville, Tennessee, who aided us in our home visitation program and control of contamination problems.
5. Mrs. Kitty Morozoff, a local VISTA worker, who lent us her insights into the problems of poverty.
6. Mrs. Glenn Hoffman of the Bell Nursery School, who contributed her expertise to aid us in our understanding of children. (A local Nursery School)
7. Mrs. Leveda Brown of the Florida Department of Public Welfare, who gave us a better understanding of the rights of individuals to public welfare.
8. Dr. Madelyn Kafoglis of Community Action in Alachua County, who made us aware of what was already being done for the people of our community.
9. Mrs. Floreine Marshall of the County Health Department, who left us with much needed information about Public Health rules and services.
10. Mrs. Gladys Wyman of the Crippled Children's Commission, whose description of the services of the Commission led to the assistance of two of our children.
11. Mrs. Runette Davis of the Florida Agricultural Extension Service, who gave us a great deal of knowledge about the use of surplus foods and wise purchasing.
12. Dr. Boyd McCandless of Emory University, Atlanta, Georgia, who helped us understand better through his vivid description, how disadvantaged mothers view visitors to their home.
13. Mr. Ray Waldrop of the Gainesville Housing Authority, who gave us information about low income housing in Gainesville and helped to make our subject population aware of it.

14. Dr. Evelyn Wenzel from the Elementary Education Department, who with a group of her graduate students, taught us how to use books with, and select books for, toddlers.
15. Dr. Louis Nuernberger of Community Psychiatry and the College of Medicine at the University of Florida, who helped us understand better the psycho/social results of maternal deprivation.
16. Dr. Earl Schaefer of the National Institute of Mental Health, who shared with us his experiences with infants and explained the home visit approach used in his Washington project.
17. Dr. Stan Lynch of Santa Fe Junior College, who showed us how easy it was for a mother or Parent Educator to continue her education.
18. Dr. Sol Kramer, Behavioral Biologist at the University of Florida, who helped us to appreciate more fully the reasons women become the type of mothers they are, giving us a new view of the project mothers.
19. Dr. Betty Siegel/, who described normal development of children during the first year of life, helping us to clarify our expectations.

Selected Films

1. Portrait of a Disadvantaged Child. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film #9021.
2. A Chance at the Beginning. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film # 9016.
3. Children Without. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film #9015.
4. A Pre-Kindergarten Program. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film #9011.
5. My Own Yard to Play in. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film #9014.
6. Palmour St. Modern Talking Picture Service, Inc., Atlanta, Georgia. Film #9013
7. Vassar College Nursery School. Modern Talking Picture Service, Inc., Atlanta, Georgia.
8. Angry Boy. Mental Health Film Board and State of Michigan Dept. of Mental Health. Black and white. Sound. 33 minutes running time. 16mm. 1951.
9. Children's Emotions. McGraw-Hill Book Company. Black and white. Sound. 22 minutes running time. 16mm. 1956.
10. Children's Play. McGraw-Hill Book Company. Black and white. Sound. 27 minutes running time. 16mm. 1956.
11. Common Fallacies About Group Differences. McGraw-Hill Book Company. Black and white. Sound. 15 minutes running time. 16mm. 1957.
12. Development of Individual Differences. McGraw-Hill Book Company. Black and white. Sound. 15 minutes running time. 16mm. 1957.
13. From Sociable Six to Noisy nine. McGraw-Hill Book Company. Black and white. Sound. 15 minutes running time. 16mm. 1957.
14. Frustrating Fours and Fascinating Fives. McGraw-Hill Book Company. Black and white. Sound. 22 minutes running time. 16mm. 1952.

15. Learning Discrimination and Skills. McGraw-Hill Book Company.
Black and white. Sound. 10 minutes running time. 16mm.
1956.

16. Learning to Understand Children. McGraw-Hill Book Company.
& Black and white. Sound. 2 reels. 44 minutes total
17. running time. 16mm. 1947.

18. Over-dependency. McGraw-Hill Book Company. Black and white.
Sound. 32 minutes running time. 16mm. 1948. (Mental
Mechanisms Series, Part 3).

19. Parents are People too. McGraw-Hill Book Company. Black and
white. Sound. 15 minutes running time. 16mm. 1955.

20. Picture in Your Mind. McGraw-Hill Book Company. Black and
white. Sound. 15 minutes running time. 16mm.

Through animated symbolism, this film traces the
background and growth of racial prejudice.

*21. Preface to a Life. United World. Black and white. Sound.
29 minutes running time. 16mm. 1950.

22. Terrible Twos and Trusting Threes. McGraw-Hill Book Company.
Black and white. Sound. 20 minutes running time. 16mm.
1950.

Film presents a close examination of the growing
years between two and four.

* Influence parents have on a child's developing
personality is shown.

Supervision of Parent Educators

The nature of supervision changed as the project developed. The original supervisory tasks grew out of definite needs felt by Parent Educators and training staff during the last part of the pre-service training program in 1966. The Parent Educators felt that they needed someone to turn to with their individual problems. They also felt that they needed someone readily available who could clarify and assist them in performing the tasks for which they were responsible. The staff, on the other hand, felt the need to see how effective the pre-service training had been and hoped to find, through supervision, the curriculum for in-service training. When field work began in October, 1966 the training staff became the supervisory staff. Three Parent Educators were assigned to one research associate or assistant.

For the first few weeks, a great deal of time was spent in supervisory activity. The supervisor would meet with the three Parent Educators working with him in a group and individually. These meetings took place first, in the afternoon after each day's case work, later on two days a week and finally on the afternoon of the one in-service day each week. Each child's situation was discussed each week and plans were made for the next week's stimulation and data collection.

As the program progressed, the Parent Educator became better able to handle problems and set her next week's work by herself. However, there was a continuing need throughout the project, for supervision of the clerical and data-collection activities of the Parent Educators. They liked this phase of the work least, and therefore would tend to avoid it.

In the fall of 1968 we reorganized supervision by shifting from graduate student supervisors to peers. A rotation system was established so that each Parent Educator had a turn in being responsible for the forms and schedule of several of her fellow Parent Educators. The responsibility increased their awareness of the difficulties encountered in keeping adequate records. This did not eliminate the need for some faculty supervision, but it removed the "middle management" level. On the basis of this, we believe that some of the Parent Educators were able to not only supervise another, but improve their own performance because of increased understanding. In the present longitudinal extension, the Backyard Center project, the Parent Educator now supervises not only an aide but also a graduate assistant. In effect, the three years from 1966 to 1969 have seen a role reversal in the relationship of Parent Educator to graduate assistant.

Materials

We have referred to the stimulation materials in earlier sections of this report. Here we wish to expand on one use of these tasks. The Stimulation Exercises entitled the Series Materials were originally developed in 1966-67 and modified slightly on the basis of the first year's experience. They were designed to be concrete and specific and to include not only a "task" for the infant to do, but also instructions to the mother as to ways to engage her child in the activity. Basically, the series materials reflect our attempts to engineer knowledge about the sensory-motor period contained in the work of Jean Piaget. We developed items that would relate to object permanence, eventual conservation of liquids and mass, the organization of body schema. Further, from our review of the work of linguists, we included labeling and action words designed to increase the number and type of words used by the mother with the child.

Because our position is that the most significant setting for infant learning is one in which there is a positive emotional climate, we attempted to include in the instructions to the mother the importance of treating these tasks as games and fun, thereby helping the child to develop positive feelings toward his mother and toward doing the tasks.

The series items did not stress basic locomotor skills that might conceivably fit into the normal maturation sequence. However, the tasks were sequenced so that the early ones were for infants who could not sit up, the next were for those who could sit, followed by those which assumed that the child was mobile.

Our assumption was that a systematic Piagetian sequential arrangement of tasks presented in an orderly fashion would lead to cognitive growth along with personal feelings of adequacy. However, the instructions to Parent Educators were that they were not to present the tasks within a

series but were to take into account the individual performance of the infant: there were no set rules that task IV:3 must follow IV:2. Generally, tasks within a particular series were completed before the next series was introduced. The pattern was to present the child with a series, find out what he could do, and make this task the entry point for the other items in the series. When he was successful in these tasks, in the judgment of the mother and the Parent Educator, the next series was then introduced. In this way the mother and the Parent Educator jointly determined the rate of progress of the child, and the particular sequence which he followed.

A basic question (hypothesis 4) was whether this sequence of materials developed from a theoretical framework would have a more positive effect upon the performance of infants than a sequence created without any deliberate effort to use Piaget's plus the linguistic development approaches. A second set of materials was therefore developed independently by one supervisor and six half-time Parent Educators in the summer of 1967 and used with the group labeled C₃. (See earlier discussion of training.) After the completion of stimulation for the C₃ group and the E₂ group which used the original series, a comparison of the series materials with the C₃ exercises was undertaken.

A Comparison of Instructional Materials: (See appendix for C₃ exercises).

Series 1 materials and the first 12 exercises in the C₃ materials were generally designed for babies from 3 to 5 months of age. Most were aimed at visual perception tasks or the coordination of eye-hand or eyes and ears.

They were different in that I:1 stressed a response to language that was presented later in C₃ materials, I:3 was concerned with differentiating by touch and I:8 taught a song. Singing games, finger plays, verses etc. were taught each week in C₃ along with the tasks and were not themselves considered tasks except in a few instances.

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The major differences in presentation for the first five months include six C₃ exercises developed for encouragement of locomotor skills. None of these skills were taught specifically in the series materials.

- C₃ #3 Pulling the child up to stand
 #6 Help him learn to turn over
 #8 Catch a swinging ball
 #10 Creeping lessons
 #11 Creeping lessons
 #12 Review 3 and help him learn to stand

The Child from 6-9 Months. This includes Series II and III and C₃ exercises 13-27.

Series II includes materials for the development of language and object permanence and introduces the child to "touch related" language experiences as well as a lesson on the mirror.

C₃ exercises also include mirror experiences and language experiences with the only noteworthy difference being the C₃ inclusion of lessons on how to hold and use a cup.

Series III introduces several new concepts which do not appear to be in C₃ materials.

Series # III:2 Specifically aimed at "touch related" language experiences. (These seem to be excluded from C₃ exercises.)

III:4 Teaching baby to use objects as tools for getting what he wants. (Not in C₃ at all.)

The Child from 10-14 Months. Series IV and V and C₃ from number 28-41 were designed with this age child in mind.

The series materials at this level include object permanence, vocabulary development and more specifically an introduction to books. The only exercise peculiar to the series as opposed to C₃ experiences would be the inclusion of IV₆ teaching to screw on a jar lid. Series V included several activities which are not included in C₃ --

- 58
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- V:1 Scribbling on Paper
 - V:4 Piggy Bank and Buttons
 - V:5 Teach "NO" is an informational word as well as disciplinary word.
 - V:7 Teach child to open box and
 - V:8 Practice listening to and following directions

C₃ on the other hand includes some "bean bag" play related to the teaching of cause and effect, introduction of the stack forms and covered cans as well as the teaching of stringing spools and pin wheel blowing.

It is also at this time that the C₃ parent educators began to promote more reading activities.

One may conclude that the basic observable differences between the series material and the C₃ exercises is that the series material more obviously stress language development and modeling behavior for following directions, while the C₃ materials include more locomotor and physical development items. Both seem to include the importance of language although each approached this area differently. There is probably more attention to rhyming and action finger-play games as a means of introducing language in the C₃ materials, while there is more of a labeling and direction following use of language, along with provision of words and directions for use of language in the series materials.

An empirical attempt was made to investigate whether or not the items in the series material clustered into dimensions which corresponded with the initial aim. Maurelli (1969) factor analyzed the 12-month performance of infants on the series materials when they were used as an annual test.¹ He found that four clearly Piaget factors emerged, three of which related to object concept development. A fourth factor he labeled "anticipatory use." He also reported a linguistic factor. Three of the series V items (V1, V4, V7)

¹ A copy of the total paper is attached as Appendix in the research report entitled "Reaching the Child Through Parent Education."

listed above as not being present in the C₃ materials are grouped on a factor Maurelli labeled "small muscles" which also includes the IV6 item of the jar lid along with building a 3-block tower, pointing to parts of the body, pouring water, replacing a formboard cut-out. These tasks all relate to the development of sensory-motor schema which we assume have payoff later in conservation and categorization operations.

Instruction

Of major importance to the project was not simply the existence of sets of materials, although their existence made the job of the Parent Educator more practical and teachable, but the way in which the Parent Educator introduced the tasks to mother and infant. Because of the basic design of the project, it was not possible to obtain frequent observations by faculty or research staff of actual presentations on home visits. The PEWR does not contain information as to how the task was conveyed. Training operations described earlier were based on the notion that sufficient demonstration and role playing would ensure a somewhat uniform type of presentation easily understood and copied by the mother, and offering the child experiences and instruction in performing the tasks and exercises. A basic problem in task development which we faced but did not necessarily solve was how to write a task so that a non-professional and a mother could comprehend and follow but not be completely structured by what was written on the page. Tasks, when taught directly and by virtually rote methods, become test or evaluation items instead of instructional aids. Observation on home visits pointed out the problem to us and a considerable effort was made to help the Parent Educators view a task as a point of departure, but we are not convinced that this was successfully accomplished. This is not to assume that the fault lay in either the training or in the capabilities of Parent Educators. Observations of teachers in regular classrooms clearly illustrate that this is a common failing. The problem may be defined as

locating the entering behavior of the child and solving what Hunt calls "the problem of the match." How, if a child is not able to perform a task at initial presentation, is the task then so structured, broken down, and presented? How can the Parent Educator and mother find out what the child can do, and use this as a beginning point for helping him learn a total task? For example, task VIII~~1~~ in the stimulation booklet indicates that the child is to hand the mother a block by color. An earlier version of this task placed three blocks in sight, for example, red, blue, and yellow, and the mother would say "hand me the red block." Mothers followed these directions after they pointed out the block and said to the child "this is red." What happened when the child could not perform? One pattern was for the mother to simply restate the directions in a somewhat louder tone of voice. A more learning orientation might have investigated three of the elements: "hand me," "red," "block." It might be that the child could not understand what it was the mother wished, or it might be that he could not identify by color. The process of helping the Parent Educators and mothers to abandon repetition of directions in a louder tone of voice and the adoption of a task analysis approach has by no means been solved in this project.

Task VIII 2, which was not originally part of one series, is an example of how we attempted to free the mother from being confined to behaving as though in a test situation. We developed it later in the program when we became aware of the problem. You will note on this task that we included specific directions to allow the child to make other arrangements, to play with the materials, and to stay with the materials after he has had a chance to do the task with his mother. Home visit observations led us to a conclusion that mothers and Parent Educators were prone to use a task so that as soon as a child was able to do it he rarely had an opportunity later to overlearn or to engage in the task purely for fun. Both Parent Educators

and mothers approached these tasks in a serious vein. Perhaps their seriousness decreased the opportunities for the children to meet one of our hopes, that is, to have opportunities to assimilate through play without the need to achieve a particular goal. The notion that the familiar becomes desirable, a point so well made by Hunt, was one we did not perhaps get across. Once a task became familiar, the Parent Educator would check it off on her list and it seemed that she and the mother would not reoffer the child an opportunity to enjoy that particular activity.

We learned from this experience that the development of a curriculum guide or a set of curriculum materials, attractive though they may be, and useful beyond the borders of the project, is but the first step in the instructional process. We discovered the problem within this project, but we did not solve it. What is needed is careful examination of the process of instruction used by Parent Educator and mother so that cues can be found for assisting them in teaching rather than ordering, or telling, or merely presenting materials. I would reiterate that the problem is more widespread than being confined to this group. Although Hess and his associates at Chicago have also indicated that lower class mothers were prone to be non-specific in directions and not to rely on positive motivation, years of observation of classroom teachers indicates that very often the process of instruction is not made explicit by professionals. Children are often told in classrooms, "Go think," as if some magic process will then take place.

Our discovery of the problem has led us in two directions. First, in the continued longitudinal work with two- to three-year-olds we are observing group settings more systematically, and have introduced into the inservice training day specific practice in task analysis and instructional procedures designed to enable the child to move pleasantly in a game setting through whatever is being offered. We are providing opportunities in the Backyard Center for two- to three-year-olds to have time to assimilate through play

while also being surrounded with opportunities for language development. Second, we have proposed a new project to investigate, by means of video tape, the actual instructional procedures used on home visits so that we may learn more about how teaching is done with these tasks. We hope we can improve the procedure and increase the mothers' competence.

We would caution other professionals who plan stimulation programs to be wary of using anyone's package of curriculum materials without carefully designing the instructional phase and paying particular attention to the interpersonal situation in which the learning tasks are introduced.

The results of both Palmer's and Weikart's work would tend to support the view that it is not the curriculum materials per se which make the difference, but that the nature of the interpersonal relationship and the manner of delivery are of significant importance in learning. The tasks, by themselves, do not constitute a total curriculum. Considerable elaboration on each task is needed in helping disadvantaged mothers use them effectively.

CHAPTER 3

RESULTS

The Families in the Program

We entered into this project with a set of assumptions concerning the psychological and social conditions which we expected to exist in the homes. We assumed that (1) the living conditions would be crowded, (2) the children would be handled and cared for by people other than mothers, and that a considerable part of our effort might be directed at so called "mothering ones," (3) the amount of verbal interaction might be less than in so called advantaged homes. Further, (4) there would be broken homes, (5) there would be a pattern of disrupted activities and a lack of focus, (6) there might be a high incidence of illness both in the home and with the children, (7) there would be several children in the family, (8) the mothers would have little education, (9) the mother might not view herself with high esteem, (10) she would feel herself to be a victim of chance, fate, and circumstance. This section of our results deals with the data in relation to a number of these assumptions.¹ We did not use an interview technique, but the Parent Educators secured the information on this and other items through observation and long term contact with the home. We felt that this was a far less threatening procedure, and preserved the non-prying element which was important to us. You will note the discrepancy between the actual numbers in each group and the number for whom data are reported. The table on density (3.1) for example, contains approximately the same group sample sizes as the marital situation table (3.6) but the table on caretakers (3.2)

¹These assumptions are presented in "The Florida Parent Education Projects: A Schematic Representation" developed for presentation at the SSRC Conference on Compensatory Education, May, 1969. See Appendix H.

shows much higher figures. This reflects the fact that the information was secured by the Parent Educators through observation, and that they only indicated information which they felt was highly reliable rather than simply reporting a number for the sake of statistics. Larger numbers of families are presented where data was secured from the Parent Educator Weekly Reports. The smaller numbers are for data indicated on the Final Observation Record which was a compilation of observations completed by the Parent Educator at the first and second birthday of the child.

Question One

Our first questions were, "What is the density and crowding situation in these homes?" "How many people are in the home, and what are the space conditions?" Table 3.1 presents the data on the 169 households on which it was possible for Parent Educators to make reliable judgements. The number of rooms in a home did not include bathrooms, but few of our houses, especially in the rural areas, had indoor bathrooms. Open porches were not counted as a room, but exist with high frequency and are used extensively by our families. In a few cases private places for sleeping were made from large rooms by using a curtain to block off sight and access into the partitioned area. Such subdivisions were also not counted as rooms. Section A of the table indicates that the average number of people living under one roof was 5.8 with a range from an average of 5 members in the E₁ (that group which was visited from 3 months to 24 months of age) to a high of 7.2 in the C₁/E group (that group which was visited by nurses for observation only in the first year and were moved into the experimental group in the second year).

TABLE 3.1

Density and Crowding in the Home:
A Number of Households by Group Containing Different Numbers of Members

Group	N	Number of Family Members													Total	Average
		2	3	4	5	6	7	8	9	10	11	13	16			
E ₁	47		14	8	8	7	4	2	1		1	1		233	5.0	
E/C	37		3	10	3	6	4	5	4	1	1			225	6.1	
C ₁ /E	9		2			2	3			1			1	65	7.2	
C ₂ /E	21	1	5	3	4	1	2	1		4			1	117	5.6	
C ₁ /C	10		1	2	2	2	1	1		1				58	5.8	
E ₂	20		6	1	5	2	3				3			113	5.7	
C ₃	25		2	4	5	3	3	2	2	3	1			161	6.5	
Total	169	1	33	28	27	23	20	11	7	10	6	1	1	972	5.8	

B Number of Households by Group With Various Sized Houses

Group	N	No. Estimates	Number of Rooms											Total	Average	Density of People Per Room
			1	2	3	4	5	6	7	8	9	10	11			
E ₁	47	5	1	1	4	9	12	11		2			1	204	4.9	1.0
E/C	37	6			1	9	11	5	3	2				161	5.2	1.2
C ₁ /E	9	1			1	3	3		1					37	4.6	1.6
C ₂ /E	21	2		1		4	6	5	2	1				100	5.3	1.1
C ₁ /C	10	3			1	4	2							29	4.1	1.4
E ₂	20	6			2	2	3	1	3	3				80	5.7	1.0
C ₃	25	3		1	5	6	4	5			1			100	4.6	1.4
Total	169	26	1	3	14	37	41	27	9	8	1		1	711	5.0	1.2

Density (Section B of table) was defined as the ratio of the number of people in the home to the number of rooms. An adjustment was made to take into consideration those homes for which we had information on the number of people but not the number of rooms. They are listed on the table as "no estimates." We multiplied the average number of people in the group by the number of cases for which there was no estimate and deducted this from the number of people. A density of 1.0 represents an average of one person per room. A study by Keller (1963) in Harlem, using the same density formula, revealed an average density of 1.2. Our population may be considered as crowded in its homes as is the Harlem group. However, neighborhood crowding, a factor contributing to any realistic appraisal of density, is nowhere near an issue in Gainesville as it would be in urban central cities. Although a family may be crowded within its home, our rural families and many of the Gainesville families had yard areas and other space in which children could play or roam, and which offered buffer zones between a family and its neighbors. Virtually all the population lived in single family dwellings. Nevertheless the data indicate that living conditions within the home are crowded and certainly do not provide much space for the privacy of family members.

Question Two

Our second question concerned itself with who actually cared for the baby at the time the Parent Educator came to instruct. We were interested not only in whether the mother was the predominant "pupil," but also who else was instructed and served as the baby's teacher. The data used to answer this question were taken from over six thousand weekly reports filled out by the Parent Educators after each visit. The information is summarized in Table 3.2. On approximately four-fifths of the home visits across all instructional groups the mother was home and was taking care of her baby. This should not be taken to mean that the mothers

did not work, because many of them did, but it indicates that mothers and Parent Educators made special efforts to arrange times and schedules so that mothers could be home when the Parent Educators came. To some degree this indicates involvement in the project. The predominant visit times were obviously in the normal work week, Monday through Friday. However, there were often occasions when Parent Educators made night and week-end visits. Since, as we mentioned in the training section, they were free to develop their own work schedule in order to accomplish the home visits, they evolved a pattern of meeting mothers at times convenient to the latter. The high percentage of mothers on this table indicates the importance of providing for flexible scheduling. As an example, the following brief comment is taken from a Parent Educator's report. "I enjoyed very much working with Mrs. Smith and I think she enjoyed very much the improvement of the baby. She is now working, but she is still interested in how and in what ways she can get me to cooperate with her so that she may be home on days that she has off for me to continue working with her baby. We tried working with the grandmother, but the baby doesn't respond as well for the grandmother as it does for the mother. So I have arranged to come on days that she is off even though it might interfere with other times that I am supposed to be somewhere else. But I do hold back this time for them."

The second major mothering one, as we had expected, was the grandmother. Aunt, oldest sibling, babysitter and father contributed small portions of time. The other people, who represented less than 3%, were grandfathers, uncles, nephews, nieces, and neighbors, both male and female, who received no monetary compensation.

TABLE 3.2
Person Receiving Instruction

Group	N	Mother	Father	Sibling	Grandmother	Aunt	Babysitter	Other
Percent of Home Visits								
E ₁	61	80.48	.7	3.35	6.32	2.54	1.88	6.18
E/C	44	80.24	.91	3.55	3.01	5.10	2.64	4.47
C/E	33	68.13	.92	7.04	13.63	5.31	4.27	.92
E ₂	32	81.31	.37	.75	9.00	3.18	5.23	.19
C ₃	41	83.89	1.60	2.84	3.63	4.58	2.05	1.57
Total Group	211	78.81	.77	3.51	7.12	4.14	3.21	2.67

Our in-service training sessions and supervisory sessions had somehow led us to believe that many more of our babies were being cared for by babysitters. Upon reflection, these were more often the problem cases and thus a disproportionate amount of time was spent in discussing ways to keep babysitters interested and have them learn the material.

This table should not be interpreted to mean that other family members were not present during the instructional time. It simply shows the primary person who was taught by the Parent Educator during the visit. There was a much higher percentage of father-present than that indicated on the table. The approximately 1% in the father category represents times when he served as the main caretaker.

Question Three

To answer question three concerning verbal interaction, a number of items on the Parent Educator Weekly Report were organized into an index. The first attempt to do this was by Bradshaw (1968) in her dissertation on the control families. She used six items shown on Table 3.3 which

TABLE 3.3

Verbal Information

	M	F	S	GM	A	BS	Other	Nobody
A) Talk sounds rather than words (ex: coo, coo)								
B) Talk words rather than sounds								
C) Use the baby's name or nickname when speaking to him								
D) Repeat sounds the baby makes in a questioning way								
E) Listen to the baby when the baby talks								
F) In a few words, order or tell the baby to do or not to do things								
G) Explain and describe things when talking to the baby								

indicates not only the type of verbalization but also the person (mother, father, sister, grandmother, aunt, babysitter). A single tally could be made for each person during a home visit. She translated the tallies into a numerical ratio consisting of observed occurrences/total number of possible occurrences. Since ten home visits were made, it was possible for the mother to be observed using a maximum of sixty occurrences, or a ratio of 1.0. The actual ratio was .43 for boys and .24 for girls in her group. This means she and her observers saw an average of less than three items on any one observation.

Following her procedure, a verbal measure was developed by Maurelli which consisted of all of the items shown on Table 3.4. The maximum possible score for one home visit for any adult is 15. The mother's mean score is the sum of items 3 and 4 on Table 3.5. The maternal means include all tallies, so that the maximum positive is 11, the maximum negative is 4. These maternal means are only for home visits when the mother was present. Jester and Bailey (1969) divided the items into the two categories shown on Table 3.4 for their study of the relationship between total verbalization in the home and infant performance. We used their division in scoring the mothers. They did not use items 9-11, so that a maximum positive score for any adult on a visit would be 8, and a minimum, 4. The adult scores include the verbalizations of all family members present during the Parent Educator's visit. The mean scores on items 5 and 6 are for all adults present on each visit. There is no clear maximum.

Analysis of Table 3.5 indicates that out of a possible maximum frequency of 15, the mothers in the first year averaged about 7.5 and the mothers in the second year averaged not quite 8. The amount of verbal interaction in the second year, then, did not go up much above that which

TABLE 3.4

Items From the Weekly Report Used in
Estimates of Verbalization

Growth Producing (Social Interaction)	Non-Growth Producing
<ol style="list-style-type: none"> 1. Look directly into his face 2. Talk words rather than sounds 3. Tone of voice sounds soft and loving 4. Use the baby's name when speaking to him 5. Repeat sounds the baby makes in a questioning way 6. Listen to the baby when the baby talks 7. In a few words, order or tell the baby to do or not to do things 8. Explain and describe things when talking to the baby 	<ol style="list-style-type: none"> 1. Talk about him as though he were not there 2. Their tone of voice sounds cross and angry 3. Talk sounds rather than words (example: coo, goo) 4. Interpret to others what the baby says
Additional items for mother index:	
How many words are there in most of the sentences spoken to the baby by the mothering one?	
0 1 2 3 4 5 6 7 8 9	
9. Tally 1 if 1, 2, 3.	
10. Tally 2 if 4, 5, 6.	
11. Tally 3 if 7, 8, 9.	

had been established in the first. One might have assumed that as babies grew older there would be more talk with them. There is a problem, however, in that the verbal interaction measure may conceal drastically the true amount of verbal-interaction in these homes. Since the Parent Educator was a participant-observer, she could not be expected to use any type of observation which required frequent check marks at any fixed small time interval such as one minute. She, therefore, completed the items on Table 3.4 for a complete home visit. This means that a mother might have used the baby's name when speaking to him any number of times during the visit, but she would receive only a score of 1. The best way to interpret this score is to assume it means that the average family, on the average home visit did not avail itself of all of the categories of interaction covered on the measure, but might very well have had a high frequency of interaction within a category.

Of particular note is the low mean on what had been assumed would be non-growth producing types of verbal interaction. Here it was possible for the maternal score to be 4.0. The means on the table indicate that it never even reached an average of one occurrence per home visit. Generally, we find these homes to use a high mixture of positive verbal interaction and little variety of non-growth producing interaction in the first two years of life.

Question Four

The general literature on the so called culture of poverty indicates that one of the devastating effects of low income is family disorganization. We were interested in the actual marital situation in our group, and in relation to hypothesis 13, the effects this might have on maternal

TABLE 3.5

Means and Standard Deviations on Verbal Interaction in Homes

Variables	First Year Groups (Baby 3-12 mos.)				Second Year Groups (Baby 12-24 mos.)			
	E1=E/C (N=75) X	SD	E2 (N=15) X	SD	C3 (N=19) X	SD	Total (N=109) X	SD
1. Total Home Visits	25.97	5.42	26.13	6.00	23.79	5.51	25.61	5.58
2. Visits with Mother	20.96	7.96	20.47	8.84	19.68	6.70	20.67	7.90
3. Maternal Positive Verbal	6.44	2.42	7.23	2.49	8.60	2.35	6.93	2.55
4. Maternal Negative Verbal	.57	.54	.67	.63	.60	.36	.59	.53
5. Adult Positive Verbal	8.13	2.23	9.74	2.17	11.44	1.99	8.93	2.53
6. Adult Negative Verbal	.80	.68	1.10	.70	1.01	.65	.88	.70
7. Total Verbal	8.95	2.77	10.86	2.57	12.47	2.13	9.82	2.98

¹Maximum instructional visits in first year = 37, in second year = 50. This excludes testing sessions.

and child performance. Table 3.6 presents the data on 168 families on whom Parent Educators felt they had sufficient knowledge to make a reliable report. Fifty-seven percent of the mothers in our population were married and almost thirty percent were single. The remaining approximately fifteen percent had been married but were now living apart from their husbands for the reasons indicated on the table.

TABLE 3.6

Marital Status

Group	N	Married	Single	Divorced	Separated	Deserted	Widowed
E ₁	46	25	14	1	6	0	0
E/C	37	18	12	1	5	1	0
C/E	30	19	8	1	1	0	1
C/C	10	8	2	0	0	0	0
E ₂	20	13	5	0	1	0	1
C ₃	25	13	6	1	2	1	2
Total	168	96	47	4	15	2	4
% of Total		57.09	27.98	2.38	8.93	1.19	2.38

Question Five

Since we assumed that in many of these homes there might be a problem of undivided attention for the Parent Education visit, the PEWR included items to measure disruption. One might assume that these items would occur in any home as a part of daily living, although they would not occur

in laboratory or classroom settings. The N on Table 3.7 refers to the population and not to the number of home visits. The data for this table represent over six thousand home visits. The means and standard deviations of the number of home visits were presented in Table 3.5.

The percentages on the table indicate the percent of home visits. For example, in group E₁ the mother had to stop to care for another child on 26.54% of the home visits. Only half of the home visits went without any interruption. Since these were homes in which there was an average of over three children (See Table 3.9) in the family, many of whom were pre-schoolers, it should not be surprising that on over a quarter of the home visits training had to be interrupted because of another child. The table also reflects quite well part of the culture pattern of the population. Parent Educators and observers have noted that often visitors come and spend the whole day. They may watch TV while the mother is busy with something else. Their presence may not affect the training, but the fourth column indicates that on over 7 percent of the home visits this did serve as a disrupting influence. Another indication of the family pattern was the degree to which training was interrupted because another adult wanted something. For some reason the Parent Education visit schedules in the C₃ group were timed to coincide with the sleeping pattern of the child with a much higher frequency than any other group. "Other" reasons may have included a favorite TV program, although often a TV set would be left on with visitors watching and not serve as an interruption to training.

Question Six "What is the health situation of the baby?"

When we began the project in October 1966, we included on the PEWR two items to secure some information on baby health. These were, "Did the

TABLE 3.7

Degree and Reasons for Interruption of Instruction

Group	N	Uninter- rupted Visit	Stopped to		Visitors Came	Phone Rang	Baby Had to be Fed	Baby Went to Sleep	Other Reasons
			Uninter- rupted Visit	Adult in Home Wanted Something					
E ₁	61	51.47	26.54	11.47	5.66	9.45	4.93	3.82	7.50
E/C	44	59.66	18.31	8.25	5.62	3.35	4.26	1.36	6.80
C/E	33	44.77	35.22	10.16	6.93	6.04	5.31	3.12	14.43
E ₂	32	54.58	27.85	9.91	3.74	5.98	7.10	2.80	7.10
C ₃	41	44.55	29.23	17.69	15.32	2.84	20.54	8.85	8.37
Total Group	211	51.01	27.43	11.50	7.45	5.53	8.43	3.99	8.84

mothering one say the baby was sick?" and "Did you think the baby was sick?" We did not develop a form to account for missing visits until a few months later. We labeled this form "Visit Not Made." Included on it was an item as to whether the cancelled visit was because of baby illness. In order to answer question six, we totaled the references from the PEWR's and the Visit Not Made forms and developed an illness ratio. Table 3.8 contains the data. The illness ratio is the number of PEWR's plus the number of Visit Not Made forms divided by the number of illnesses reported on each. The E₁ group and the E/C group represent original populations and therefore have some missing data through lack of the Visit Not Made form. The C/E group total of PEWR's plus Visits Not Made indicates a far more successful recording procedure. Overall, the extent of baby illness as reported or observed by Parent Educators would suggest that infants in this project were sick slightly less than ten percent of the times on which visits were scheduled. We have no way of knowing, of course, the seriousness or the extent of illnesses beyond these data. We know that many children brought in for testing or observed on home visits by faculty and research staff were not considered ill by either Parent Educator or mother although they seemed to be suffering from nose, throat and chest congestion. Further, we have no indication of nutritional status although we know of individual cases in which we enabled the family to secure commodity foods in order to survive. The chances are rather good that the ten percent figure is an underestimate of the number of days of sickness of the infants in this project. Even if it resembles the total amount, and one runs the risk of extrapolating, it would mean that the average infant was sick more than two months of his first two years of life.

Although not formally built into the project, we established contact with the Maternal and Infant Care Project and with the pediatric clinic in the county and encouraged mothers to avail themselves of these services when our Parent Educators reported the need. In the first years of the project, several nurses were part of the research team and went out with Parent Educators in cases where the Parent Educator felt a serious problem existed. We had no formal procedure for referral, but we did what we could to encourage mothers to use services available, even to the extent of the Parent Educators providing transportation within their limited capabilities.

We feel, therefore, that the thrust in the Parent and Child Center program for inclusion of a medical component is a vital necessity for work with infants in this population. In our new proposal to NIMH for reinvestigating the infancy stage we have secured the excellent cooperation of the Pediatrics department of the College of Medicine and local private pediatricians so that all infants in the project will receive an original screening, will have access to clinics, and will be reexamined at their first birthday. We were unable to develop this procedure in the current Children's Bureau project, but we feel that it would have contributed to not only better physical care for the infants but a clearer study of the relative effects of the stimulation project upon the development of the child.

Question Seven

Table 3.9 presents the data on the number of children in the home. The range of children was from one to fourteen with a mean of 3.29 and a median of 3. About 22% of our mothers had only the child that was in the project.

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TABLE 3.9

Number of Children in the Family

Group	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Mean No. of Children
E ₁	35	8	8	5	7	3		1	1	2						3.29
E/C	34	7	3	8	3	5	2	2	3	1						3.91
C/E	23	5	8	2	2	3	1		1	1						3.17
C/C	26	4	8	2	4	2	1	1	2		1					4.04
E ₂	17	6	8	1	0	1		1							1	2.18
C ₃	23	6	6	3	4	3					1					2.96
C ₄	26	6	6	6	3	3	2									2.88
Total	184	42	47	27	23	20	6	5	7	4	2	0	0	0	1	3.29

Question 8 was "Will there be differences in mothers' conceptions of the ideal infant, ideal male infant and ideal female infant according to age of the infant, race and parity?" These questions were developed by Dr. Mary McCaulley, whose report, including her rationale, follows.

"If one is to understand how individual mothers differ in the way they socialize their children, it is useful to know something of the mother's goals and expectations for the child. Two mothers who appear to be using the same childrearing practices may do so for quite different reasons. One mother may be trying to teach her child to meet the standards of the culture but does not know how to do so. Another mother may be deliberately training her child to meet standards which differ from the culture in some ways.

Nowhere are differences in mother expectancy likely to be greater than in the differences in which boys and girls are socialized. The American culture is considered by anthropologists as one in which an unusually large number of behaviors, attitudes and personality factors are linked to sex membership--that is, males and females are socialized to be very different kinds of human beings. Some of the stereotyped qualities adopted in the name of masculinity or femininity may, indeed, work against the development of maturity and mental health (for example, diminishing the capacity for tenderness in males and discouraging competence in females).

If we can assume that adults in our culture have learned many beliefs, true or untrue, about differences between males and females, and have strong ideas of behaviors appropriate for each sex, we can expect that mothers of children will react differently to sons and daughters,

and will socialize them toward what they believe to be appropriate modes of life. The question is, how soon does this process begin? We know that babies are 'programmed' before they are born, with purchase of pink (if a girl is desired) blue (if a boy is desired), or green or yellow (if the mother wishes to leave her options open). Our observations of obstetric patients suggest that some mothers respond differently to boys as opposed to girls in the first days of the infant's life; indeed, some mothers respond differently to the fetus, depending on whether they believe they are carrying a boy or a girl. To understand better what kinds of expectations mothers in the Parent Education Project had for boys and for girls of different ages, we obtained semantic differential ratings (called here **EME: Estimate of Mother's Expectancy**)¹ on 24 scales related to qualities differentiated by cultural stereotypes for males and females. The semantic differential (Osgood, Suci, & Tannenbaum, 1957) was chosen as the research instrument. It appeared to offer a brief, non-threatening, measure of attitudes, in a form which the Parent Educators could administer and the mothers could answer. Preliminary trials and discussions with the Parent Educators were used to determine final selection of scales, and to clarify instruction procedures. The final copy of the instructions for Parent Educators appears in Appendix E. At the end of the project, the Parent Educators reported that mothers were readily able to understand the task, but that most found it long. They reported doubts about the care with which some mothers answered the final pages. In the format used, Parent Educators gave mothers a yellow cardboard marked with definitions of

¹See Appendix D.

each point on the line, which mothers were to move down the page as they worked, as a guide and a reminder. Most of the Parent Educators reported that the yellow guide was very helpful in the beginning. Some mothers continued to use it, others discarded it after they became familiar with the task. At the beginning of the project the Parent Educators role-played administration with the experimenter. Despite efforts of the research team, administration procedures were followed more loosely as the project progressed. This task was unpopular with Parent Educators, for the good reason that it was not directly related to the baby, and the focus on the mother was not part of the original understanding between the mother and Parent Educator, with the result that there was often resistance to be overcome. During the project we were under no illusions that the tasks were being administered or performed according to the standardized instructions, nor that Parent Educators were able to motivate subjects in every case. Most of the team doubted seriously that the data would be useful.

The actual number of concepts on which data were collected was 12, and the actual number of scales, 24. Three versions of the booklet were prepared. Six of the 12 concepts appeared in all sets, and 6 in two-thirds of sets. The Concepts which appeared in all 30 books were: (1) Myself, (2) This Child, (3) My Ideal Mother, (4) My Ideal Father, (5) My Ideal Baby Boy, (6) My Ideal Baby Girl. Two of the three pairs of concepts below appeared in each booklet (i.e. each pair appeared in 20 of 30 booklets): (7) My Ideal 3 Year Old Boy, (8) My Ideal 3 Year Old Girl, (9) My Ideal 6 Year Old Boy, (10) My Ideal 6 Year Old Girl, (11) My Ideal 9 Year Old Boy, (12) My Ideal 9 Year Old Girl.

Concepts within a book appeared in randomized order. To obtain ratings of 24 scales, three page formats were used. Twelve scales appeared on all three pages. Four scales appeared on each of the three pages. The order of scales on a page and the pole to appear at the right and left sides of the page were determined randomly. Each scale was divided into 7 parts, in the usual semantic differential format. The 24 scales were selected from an original list of 80 chosen to represent dimensions of masculinity-femininity, and to represent the scales found in research with the instrument to be good markers for the Evaluative, Activity and Potency factors found in most factor analytic studies of the Semantic Differential. (It is important to keep in mind that the Evaluative, Activity and Potency data reported in the Results section are based on 3 adjectives assumed to reflect these factors, not on a factor analysis of our data.) The scales finally chosen, given here for convenience with the higher evaluation, activity, or potency score on the right, are as follows:

The Twelve Major Scales

Bad-Good
Ugly-Beautiful
Dirty-Clean

Evaluative Measure = Sum of these three scores \div 3

Slow-Fast
Dull-Sharp
Quiet-Noisy

Activity Measure = Sum of these three scores \div 3

Soft-Hard
Smooth-Rough
Weak-Strong

Potency Measure = Sum of these three scores \div 3

Crying-Laughing
Dark-Light
Foolish-Wise

The Twelve Minor Scales were:

Quarrelsome-Peaceable	Cold-Hot	Sickly-Healthy
Useless-Useful	Afraid-Brave	Resting-Busy
Difficult-Easy	Emotional-Calm	Still-Moving
Low-High	Indoors-Outdoors	Unlucky-Lucky

At the time of data analysis, a machine program transferred the randomized order of concepts and scales into standard order, with scales reversed when necessary prior to analysis. The seven scale divisions are represented by scores of 1 to 7, with 7 indicating the highest rating of the right-hand adjective. The effect of the attempt to collect more concepts and scales than could be compassed in a single test administration complicated data analysis, and is the explanation for the unequal N's found in the data.

Administration Schedule. The plan was to administer the semantic differential twice to each child's mother, once when the child was 9 months old, and again at 15 months. The intent was to obtain ratings after an interval, and to do them at a time when there were not other heavy demands for data collection. In the course of the study, the schedule was modified so that mothers filled in booklets between the time the child reached 9 months to the time he was 22 months old. Most mothers did one set of ratings before the child was a year old, and completed a second set within the child's second year. Mothers in both experimental and control groups participated.

Data Analysis. Data from all protocols were transcribed to data sheets for the computer. The only omissions were concepts completely omitted by the subjects (i.e. a concept partly rated was recorded for those scales completed). In some cases, subjects had obviously answered at random,

or had followed the same pattern repetitively. For example, if an ideal child was rated 'very sickly,' one can assume the subject does not understand the scale, or is not answering it conscientiously. Similarly, three times the concept name was inadvertently omitted, but the subject filled in the scales anyway! Since one of the research questions concerned the overall utility of this method of measurement with an indigent population, we included all recordable data, despite our doubts about some protocols. When concepts and scales had been transposed by machine into standard form, group differences (means and standard deviations) and t tests were computed using a modified analysis of variance program. The t tests using individual group variances as estimators are used in reporting findings. Although some of our expectations were definitely directional (i.e. that males would be rated stronger, rougher, more outdoors, and females cleaner, more beautiful), others were more clearly exploratory. Therefore, all data are reported on the basis of two-tailed t tests. In short, both in inclusion and analysis of data, the more conservative choice was made. Mothers were asked to describe for each sex the ideal infant, 3 year old, 6 year old, 9 year old, and parent. In addition, mothers described 'Myself' and 'This Child.' Mothers completed these ratings at two periods during the project, about 6-9 months apart. At each administration, ten concepts of the 12 were completed by the mother, with each concept rated for 16 of the 24 scales. Concepts and scales were randomly distributed in test booklets. Our first interest was in whether mothers would describe the ideal male and ideal female infant the same or differently depending on (a) the age of their child when they did the rating, (b) whether they were Negro or white mothers,

and (c) whether they were new mothers or experienced mothers. Table 3.10 presents the data.

TABLE 3.10a

Means and Standard Deviations on EME Scales
by Age of Child at Time of Rating

Scale	Ideal Male Infant				Ideal Female Infant				Rating	
	8-12 Months		15+ Months		8-12 Months		15+ Months		t	t
	X	SD	X	SD	X	SD	X	SD		
Bad-Good	4.84	1.99	5.02	2.10	5.48	1.68	5.42	1.84	-.50	.19
Ugly-Beautiful	5.64	1.24	5.72	1.29	5.90	1.42	6.04	1.36	-.37	.56
Dirty-Clean	5.14	1.84	5.56	1.71	5.48	1.66	5.76	1.49	-1.29	-.97
EVALUATIVE	15.62	4.02	16.17	4.22	16.85	3.93	17.15	3.68	-.75	-.42
Slow-Fast	5.54	1.59	6.01	1.42	5.71	1.37	5.48	1.57	-1.71#	.86
Dull-Sharp	5.66	1.32	5.64	1.38	5.48	1.50	5.52	1.51	.09	-.14
Quiet-Noisy	4.46	1.81	4.15	2.22	3.79	2.03	3.72	2.11	.88	.20
ACTIVITY	15.66	2.95	15.65	3.35	14.98	3.23	14.72	3.45	.01	.44
Soft-Hard	3.49	1.94	3.20	1.86	2.40	1.83	2.34	1.50	.84	.51
Smooth-Rough	4.14	1.90	3.89	2.08	3.27	2.04	2.57	1.64	.71	2.03
Weak-Strong	5.74	1.48	5.72	1.61	5.50	1.46	5.41	1.61	.09	.34
POTENCY	13.30	3.73	12.76	3.89	11.17	3.87	10.28	2.56	.78	1.41
Crying-Laughing	5.48	1.49	5.53	1.66	5.81	1.45	5.20	1.90	-.18	2.05*
Dark-Light	4.66	1.33	4.10	1.92	4.75	1.45	4.75	1.73	1.97#	-.01
Foolish-Wise	5.78	1.42	5.95	1.29	5.64	1.42	5.68	1.51	-.69	-.12
Quarrelsome-Peaceable	4.69	1.74	4.91	2.04	5.07	2.40	5.10	1.74	-.37	-.04
Useless-Useful	5.31	1.66	5.83	1.94	5.00	1.84	4.95	1.82	-.88	.08
Difficult-Easy	5.25	1.61	5.13	1.58	5.93	1.27	5.50	1.43	.23	.92
Low-High	4.75	1.34	4.70	1.49	3.86	1.41	4.60	1.70	.12	-1.39
Cold-Hot	4.64	1.64	4.43	1.83	4.00	1.51	4.44	1.53	.38	-.89
Afraid-Brave	5.60	1.96	5.30	1.84	4.40	1.45	4.96	2.09	.49	-1.00
Emotional-Calm	4.07	2.46	4.73	1.82	4.27	1.62	5.00	2.10	-.93	-1.24
Indoors-Outdoors	3.50	1.68	5.17	2.05	4.00	2.49	3.76	2.20	-.272*	.28
Sickly-Healthy	5.94	1.39	6.32	1.06	5.95	1.93	6.36	1.02	-.98	-.87
Restful-Busy	5.79	1.78	5.78	1.81	5.26	1.69	5.47	1.95	.01	-.41
Still-Moving	5.84	1.54	6.36	1.03	5.68	1.42	5.94	1.33	-1.28	-.66
Unlucky-Lucky	6.00	1.20	5.93	1.54	5.89	1.29	5.97	1.30	.18	-.21

Table 3.10b

Means and Standard Deviations on EME Scales by Race

Scale	Ideal Male Infant				Ideal Female Infant				t	
	Negro		White		Negro		White		Male	Female
	Mean.	S.D.	Mean.	S.D.	Mean.	S.D.	Mean.	S.D.		
Bad-Good	4.87	2.10	5.83	1.40	5.45	1.85	5.75	1.42	1.98#	.63
Ugly-Beautiful	5.73	1.23	6.25	1.22	6.02	1.32	6.58	.90	1.34	1.82#
Dirty-Clean	5.50	1.79	5.67	1.97	5.87	1.54	5.92	1.44	.27	.11
EVALUATIVE	16.10	4.14	17.75	3.79	17.33	3.82	18.25	2.93	1.35	.94
Slow-Fast	5.52	1.70	5.50	1.38	5.80	1.42	5.25	1.36	.04	1.26
Dull-Sharp	5.87	1.28	5.92	1.31	5.67	1.41	5.50	1.38	.12	.38
Quiet-Noisy	4.48	2.04	3.67	1.23	4.00	2.21	4.17	1.03	1.85#	.40
ACTIVITY	15.87	2.96	15.08	2.74	15.37	3.36	14.92	3.20	.89	.44
Soft-Hard	3.51	2.19	3.17	1.70	2.48	1.95	2.58	1.38	.60	.21
Smooth-Rough	4.02	2.19	3.25	1.48	3.02	1.99	2.83	1.75	1.49	.32
Weak-Strong	5.92	1.50	6.25	1.36	5.60	1.53	5.58	1.31	.76	.04
POTENCY	13.32	4.26	12.67	3.06	11.02	3.81	11.00	3.04	.62	.02
Crying-Laughing	5.72	1.47	5.75	1.36	6.03	1.38	5.67	1.50	.08	.78
Dark-Light	4.88	1.53	3.58	1.24	4.77	1.51	3.75	1.42	3.18**	2.24*
Foolish-Wise	6.02	1.32	6.42	1.24	5.85	1.31	6.08	1.38	1.01	.54
Quarrelsome-Peaceable	4.81	1.87	5.20	1.64	5.47	2.18	5.00	1.82	.44	.44
Useless-Useful	5.56	1.71	5.25	1.50	5.24	1.79	5.50	1.29	.36	.34
Difficult-Easy	5.19	1.68	5.40	1.34	5.94	1.30	3.50	.58	.29	5.72**
Low-High	5.12	1.50	4.20	1.10	3.88	1.69	4.00	.00	1.50	.29
Cold-Hot	4.28	1.64	5.00	1.41	3.88	1.50	4.67	1.03	.67	1.41
Afraid-Brave	5.39	2.12	6.00	1.73	5.00	1.70	4.83	1.33	.55	.24
Emotional-Calm	4.44	2.48	5.00	1.73	4.30	1.90	5.17	1.17	.48	1.32
Indoors-Outdoors	3.56	2.03	4.50	.71	3.21	2.26	4.20	2.39	1.32	.80
Sickly-Healthy	6.16	1.28	7.00	.00	5.96	1.80	7.00	.00	3.28**	2.94**
Restful-Busy	5.15	2.44	5.75	1.89	5.04	1.86	5.00	1.41	.56	.04
Still-Moving	5.81	1.83	6.00	1.41	6.00	1.36	4.00	.00	.24	7.52**
Unlucky-Lucky	6.14	1.37	5.75	1.26	6.00	1.36	6.50	.71	.42	.88

p < .10 * p < .05 ** p < .01

Table 3.10c

Means and Standard Deviations on EME Scales by Parity of Mother

Scale	Ideal Male Infant				Ideal Female Infant				t Male	t Female
	Experienced		New		Experienced		New			
	Mean.	S.D.	Mean.	S.D.	Mean.	S.D.	Mean.	S.D.		
Bad-Good	5.25	1.93	4.33	2.50	5.64	1.65	4.94	2.24	1.32	1.16
Ugly-Beautiful	5.84	1.19	5.87	1.41	6.18	1.17	5.81	1.60	-.06	.85
Dirty-Clean	5.51	1.82	5.53	2.00	5.92	1.48	5.75	1.73	-.04	.35
EVALUATIVE	16.61	4.06	15.73	4.71	17.74	3.30	16.50	4.82	.65	.96
Slow-Fast	5.53	1.62	5.47	1.92	5.64	1.37	6.40	1.12	.12	-2.18*
Dull-Sharp	5.92	1.29	5.93	1.28	5.74	1.34	5.38	1.63	-.03	.81
Quiet-Noisy	4.39	1.89	4.20	2.34	3.92	2.06	4.81	2.04	.29	-1.52
ACTIVITY	15.84	3.01	15.60	2.85	15.30	3.41	16.19	3.06	.29	-.98
Soft-Hard	3.44	2.07	3.27	2.37	2.60	1.89	2.38	1.93	.26	.41
Smooth-Rough	3.90	2.15	3.93	2.28	2.94	1.86	3.50	2.25	-.05	-.90
Weak-Strong	6.00	1.36	5.80	1.93	5.70	1.32	5.81	1.52	.37	-.26
POTENCY	13.20	4.00	13.00	4.80	11.14	3.66	11.69	3.55	.14	-.53
Crying-Laughing	5.67	1.40	6.00	1.41	6.08	1.23	5.62	1.89	-.80	.90
Dark-Light	4.59	1.50	5.07	1.98	4.44	1.51	5.00	1.67	-.86	-1.19
Foolish-Wise	6.04	1.34	6.33	1.18	6.00	1.20	5.75	1.69	-.82	.55
Quarrelsome-Peaceable	4.42	1.68	5.17	2.04	5.42	2.02	5.00	2.76	-.78	.33
Useless-Useful	4.82	1.60	6.50	1.22	5.58	1.38	5.17	1.72	-2.42*	.52
Difficult-Easy	5.17	1.75	5.17	1.47	4.92	1.62	6.00	1.26	.00	-1.55
Low-High	4.75	1.36	5.67	1.75	4.08	1.44	4.00	1.67	-1.12	.10
Cold-Hot	4.77	1.30	2.80	1.30	4.10	1.37	4.00	2.83	2.87*	.05
Afraid-Brave	5.78	1.89	4.60	2.61	5.00	1.52	6.00	.00	.93	-2.94**
Emotional-Calm	4.86	2.32	3.20	2.49	4.45	1.67	6.50	.71	1.30	-3.28**
Indoors-Outdoors	4.18	1.72	3.00	2.34	3.75	2.35	2.50	.71	1.01	1.62
Sickly-Healthy	6.46	1.10	5.75	1.50	6.50	1.46	5.50	2.14	.90	1.20
Restful-Busy	5.60	2.24	3.25	2.63	5.44	1.34	4.38	2.67	1.69	1.07
Still-Moving	6.12	1.59	4.50	2.38	6.06	1.26	5.88	1.64	1.32	.28
Unlucky-Lucky	6.20	1.08	5.25	2.36	6.33	1.14	5.50	1.51	.79	1.39

p < .10 * p < .05 ** p < .01

Age. Our general expectation was that, since mothers in rating 'My Ideal Baby Boy' and 'My Ideal Baby Girl' were responding, hopefully, more to a stereotype than to a description of their own child, there would not be differences in ratings made when the child was younger and when he was older. Analysis of the mean scores for ratings when infants were 8 - 12 months old, compared with mean scores when infants were 15 months old or older, showed only one significant difference at the $p < .05$ level for My Ideal Baby Boy and two for My Ideal Baby Girl. Since these could easily be chance differences in 48 comparisons, we conclude that the age of the baby is related only slightly, if at all, to the mother's description of an ideal infant.

Race. In view of an extensive literature describing the Negro culture as matriarchal, one might expect race differences in attitudes toward the ideal qualities of each sex. Our observations of pregnant women and new mothers, however, convinced us that individual mothers have quite inconsistent expectations of whether boys or girls are more valued, will be easier to handle, more "hard-headed." Further, we expected race differences, if they appeared, would more likely be found in ratings of older children, not infants. Finally, in view of the research that indicates that the poor often share the values of the larger culture, but differ in their ability to achieve or implement them, we might expect both poor Negro and white mothers to value essentially the same qualities as the stereotypes of middle-class white America. For these considerations, therefore, we had little expectation that there would be consistent race differences in the EME ratings of these indigent mothers. Our findings here are based on a Negro:white ratio that is typically 5:1, and there

are indications that white mothers in general were more conscientious about doing the ratings. Our findings, therefore, should be considered as tentative until replicated with a more balanced sample.

Of 24 possible differences for My Ideal Baby Boy, only two were significant at the $p < .01$ level. Negro mothers rated the Ideal Baby Boy as lighter, and as more sickly. Of 24 possible ratings for My Ideal Baby Girl, 2 were significant at the $p < .05$ and 2 at the $p < .01$ level. Negro mothers rated the Ideal Baby as lighter, easier, sicklier, and more moving than still. We assume the ratings for Sickly-Healthy stem from less attention by Negro mothers, since all white mothers rated this scale as 7. On the Dark-Light scale, it is obvious that darkness and lightness have quite different connotations in describing white children and Negro children. The value Negroes place on being less dark appears, albeit not in every case, as a difference in ratings of ideal children of other ages. Aside from this finding, we can conclude that the Negro and white mothers in this sample are more alike than different in the qualities they value in baby boys and girls.

Parity. The third question was whether women having their first baby would have different expectations of the ideal infant from women with more than one child. There were only two significant differences between ratings by new (N=about 15) and experienced (N=about 50) mothers for My Ideal Baby Boy, and only three for My Ideal Baby Girl. New mothers rated boys more useful and less hot; they rated girls faster, braver and calmer. We assume these findings are primarily chance, and that there are no major differences in maternal expectations resulting from the parity of the mother.

In summary, we found no major differences in expectations for ideal male and female infants related to the age of the mother's child, the race of the mother, or her parity.¹

Additional Maternal Variables

Mothers' Education. We were able to secure the number of years of the mother's education at the time that Parent Educators administered the Social Reaction Inventory when babies were twenty-one months of age. The average years of schooling reported by mothers was 10.4 with a standard deviation of 1.55. Although there was no formal way to check this, we suspect that this figure is somewhat high in that the average for Alachua County outside of University personnel would not be at that point. Nevertheless, we accepted this as a valid indication and examined the relationship between this educational level and infant test performance as a part of Hypothesis 13.

Mother's Self-Esteem and Belief in Internal Control. Our basic assumptions were that the mothers would enter the project with low self-esteem and would be high on belief in external control of reinforcement. In the 1966-67 year, two instruments were developed to not only test these assumptions but to measure changes. They were the Social Reaction Inventory, a modification of the Rotter I/E Scale, and the How I See Myself, a modification of a self-report scale originally designed for elementary and secondary school students. Because both these scales were developed during the first year of the project, we were unable to get entry scores on the E₁, E/C, and C/E groups. We do, however, have entry scores on the second group who were admitted for the Children's Bureau project in the summer of 1967 (groups E₂, C₃, and C₄). When our mothers are compared to several of Rotter's samples, and to Parent Educators who were recruited in September, 1968, to serve in the Follow Through Program for which the Institute's

Parent Education Project is the model, it is clear that our basic assumption was correct (See Table 3.11). The higher one's score, the more external the belief.

TABLE 3.11

Means and Standard Deviations of I-E Scores for Samples of Several Populations Compared to Parent SRI Scores

Group	N	Sex	X	SD
8th grade plus reading (I-E)	80	M	7.72	3.65
National stratified sample, Purdue Opinion Poll 10th, 11th, and 12th grades (I-E)	1000	M&F	8.50	3.74
18 year olds, Boston (I-E)	25	F	9.00	3.90
E ₂ + C ₃ group (SRI)	35	F	10.74*	3.67
C ₄ group (SRI)	26	F	9.92**	4.00
Follow Through Parent Educators (SRI)	40	F	7.21	3.58

*Higher than 8th graders, Purdue sample and Follow Through, $p < .01$
 **Higher than Follow Through, $p < .05$

The Social Reaction Inventory differs from the original I/E Scale in that the language was modified to a fourth-grade, vocabulary level. Our Parent Educators examined the inventory to make sure that the words would be understood by the mothers with whom they would be working, and assisted in re-writing. This work was developed by Lawrence Bilker, a research associate in the 1966-67 year. The SRI was administered orally by the Parent Educators, so that mothers who were illiterate would not be faced with the embarrassment of being presented with a form. We trained the Parent Educators on administering the SRI through tape recording role-playing settings to be sure that voice tones became neutral and did not

reveal the bias of the Parent Educator. Administration of the SRI to the Parent Educators employed in the six communities throughout the nation was somewhat different. They were given the form to fill out in the presence of an examiner who was in their community from the University of Florida. Rotter reports that the test conditions for the Purdue sample varied, that the administration to the Boston pupils was individual, and he has an unclear statement about administration to the eighth graders (Rotter, 1966, p. 15). A person who has a strong belief in internal control, according to Rotter, is likely to be able to take advantage of environmental opportunities. The external scores achieved by our mothers at entry into the project seem to suggest that as a group they would not have been likely to normally exert themselves to take advantage of learning opportunities. In the next section of this report in relation to Hypothesis 6, we will discuss whether or not the program was able to modify this external orientation.

The measurement of self-esteem was developed for this population in similar fashion to the SRI. That is, some items were modified to suit adults rather than children; then Parent Educators commented on the items and their ability to be understood, and practiced administering the instrument to secure unbiased responses. The scale yields four factor scores: Autonomy, Interpersonal Adequacy, Physical Appearance, and Attitudes Toward Teachers and School. We were able to compare the mothers entering the program in the E₂, C₃, and C₄ groups with several other populations on this instrument. The items in each factor and the table of comparisons appears on pages 31 through 33 in Appendix G. Mothers who entered our project reported themselves generally in a less

favorable light than the other groups which were composed of high school students, junior college students, and women employed as Parent Educators in the Institute's Follow Through Programs. Our mothers entered our program with relatively low self-esteem.

It is worthwhile noting that the Parent Educators recruited in the Follow Through Programs were drawn essentially from disadvantaged populations in the six communities in which we work. Nevertheless, on both the SRI and the How I See Myself they report themselves as being more internally motivated than our mothers and equivalent to other samples, and with more feelings of adequacy than our mothers and other populations, and feeling more favorably disposed toward teacher and school than our mothers. It is not clear whether this reflects some self-selection or is the result of employment, but it does indicate that situational and community factors may influence score. In our discussion of Hypothesis 8 we will see whether or not this particular project was able to overcome the entering feelings of low self-esteem.

Attrition

A basic problem of any longitudinal research and especially of a population such as ours, is that of attrition. We offered parents no inducements for participation in the program. They were not paid, nor were they provided with any medical, social, or psychological services as a reward for participation. Indeed, participation in the project sometimes represented an additional burden in the life of a parent carrying responsibility for several children, faced with difficulties in all areas of life. We purposely offered no incentives

because we wished to examine whether the program itself would be seen and accepted by mothers as intrinsically worthwhile enough to outweigh not only all the past experiences in her life which had taught her to be suspicious of offers of help, but also her present life circumstances. Almost half our mothers were unmarried, they averaged rearing three children, they entered the program with rather low self-esteem compared to other groups, and they tended to see themselves as having little control over their destiny. Given obstacles such as this, and a minimum program of intervention which often provided the mother with little opportunity week by week to see progress in her child, how well did they stay in it? Table 3.12 indicates the overall attrition rate from July 1, 1967, to February 28, 1968, the length of the Children's Bureau support. Table 3.13 indicates the reasons for attrition after admission.

Another factor to be considered, and one that troubled us for some time, was how to classify people who remained in the experimental population, but who because of varieties of circumstances, were seen on a far thinner schedule than once a week. For example, on Table 3.12, the E_1 group at the end of the project consisted of 36 families. Of these 36 families, only 25 were instructed at least on 17 home visits the first year, and 25 home visits in the second, and had a child who took the Griffiths and the Bayley tests and series tests in both years. There are then, two forms of attrition. One is actual loss to the project and the second is minimum participation. In the presentation of our program results, we will limit the "experimental" group to those who were visited approximately half the time. Here we are concerned only with those who actually left the sample. Table 3.12 and 3.13 cover

TABLE 3.12. Attrition: July 1, 1967 - February 28, 1969

Group	Assigned at Birth	Lost Before Contact	Admitted	Dropped	Rate ¹	Final N
E ₁	66	5	61	25	41%	36
E/C	46	3	43	7	16.3	36
C ₁ /E	11	1	10	6	60	4
C ₂ /E	40	14	26	5	19.2	21
C ₁ /C	15	2	13	2	15.4	11
C ₂ /C	42	23	19	3	15.8	16
E ₃	55	24	31	10	32.3	21
C ₃	71	28	43	21	48.9	22
C ₄	50	20	30	5	16.7	25
Totals	394	120	276	84	30.5	192

¹Rate = Drops/Number admitted

TABLE 3.13. Attrition After Admission

Group	N	Moved	Cannot Locate	Refused	Income Too High	Other
E₁	25	14	1	5	0	5
E/C	7	5	1	1	0	0
C₁/E	6	4	0	1	0	1
C₂/E	5	2	0	1	0	2
C₁/C	2	2	0	0	0	0
C₂/C	3	3	0	0	0	0
E₂	10	3	0	6	0	1
C₃	21	5	2	8	0	6
C₄	5	0	0	4	0	1
Totals	84	38	4	26	0	16
Percent		45.2	4.8	30.9	0	19.1

the attrition during the total period of the Children's Bureau grant. Families were assigned to experimental or control conditions at the birth of the baby and given a number even before the family was initially contacted. Mothers were then interviewed at the hospital or shortly thereafter to gain initial approval, and visited again at a six-week point for further explanation or a reassessment of interest. Parent Education began when the baby was three months old. The second column on Table 3.12 indicates that 120 babies were "lost before admission." Most of this loss was due to moving or our inability to locate the family. Because of the nature of the 12-county region in which we work, many rural families had post office boxes but no other form of address so they could not be found. Some loss was due to illness, death of an infant, and the like. Outright refusals to participate represent only a little more than 25% of that 120 families. Of the 276 families admitted, the highest drop-out rates are in the E_1 group and the two experimental groups added in the summer of 1967. Children in the first six groups were born between June, 1966, and February, 1967. Half were born before October, 1966. Those who dropped out after February, 1968, would be in the child's second year, and for an E_1 baby, would most likely be older than 18 months. Of the 25 drops in the E_1 group, 16 dropped before February 1968, and 9 after. In the E/C group, 6 of the 7 babies who dropped all completed one year in the project and dropped after being assigned to control condition. Of the 11 C/E babies who dropped, only two were refusals and left the project at the turning point of first to second year. The highest rates of refusal were in the two new groups and we have no particular explanation for this. Table 3.12 indicates that approximately 30% of those lost to the project were because of refusals

to continue. Twenty-one of these refusals were from mothers who were in experimental groups. This represents approximately 12% of all experimental mothers admitted to the project. It is clear that the heaviest attrition is due to the migration pattern of members of this population.

What can we conclude from this attrition data? Attrition after involvement runs about 30%, of which approximately 30% is due to refusal after an initial commitment. Generally, those who once become involved tend to stay involved in some fashion, unless they move away. This relatively low dropout rate over a year and a half period probably is an unobtrusive measure of success, since there are no extrinsic inducements for participation. This relatively low attrition rate is a tribute to the diligence and efforts of the Parent Educators in maintaining their contacts with mothers and to the mothers, who persisted sometimes under very trying circumstances.

Further Family Information

In addition to the statistical data, we were able to gather some general descriptive information about the families in the project. These observations are to be found on pages 10-30 of Appendix G .

Results in Relation to the First Objective

A study of this complexity in a field setting makes the definition of "treatment" somewhat looser than that normally employed in short investigations under carefully controlled conditions in the laboratory. We were faced with setting up a criterion of what constitutes treatment beside assignment to a group. Our data indicate wide variation in actual number of home visits made in all experimental groups. It was possible in the first year of the project to achieve 39 home visits between three months and twelve months, between the baby's third month birthday and twelve month birthday, of which 37 would be instructional visits and two would be for series testing. Actually some members of the groups assigned to E₁, E₂ or C₃ had less than half the number of possible visits. We asked ourselves if they legitimately could be considered as having received enough instruction to make any difference. We therefore established as our criterion for inclusion in comparative data a minimum of 17 visits for first year and 25 visits for second year. Although this decreased our sample size for analyses of the hypotheses which follow we feel they represent a more legitimate test.

Hypothesis One. At the end of the first year of life children whose mothers were educated in stimulation series would be more highly developed than those whose mothers received no instruction. Hypothesis 1-A was that these children would perform more successfully on more series tasks. Table 3.14 presents the data on the series items. The data can be approached in three ways. First, simply on the signs test. If all items on which any difference appears are counted, 24 of the 35 items favor the experimental and 11 favor the control. If we rule out the five items on which

TABLE 3.14

Proportions of Successes on Series Items at 12 Months,
Experimental and Control Infants

		Experimental (N=81) E ₁ , E/C, E ₂			Control (N=69) C/E, C/C, C ₄		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	80	23	.29	69	10	.14**
	2	80	66	.83	69	56	.81
	3	60	50	.83	61	50	.82
	4	78	63	.81	68	45	.66**
	5	77	43	.56	68	34	.50
	6	60	22	.37	61	22	.36
Series V	1	81	57	.70	69	47	.68
	2	81	55	.68	67	48	.72
	3	75	22	.29	65	11	.17*
	4	81	55	.68	69	39	.57
	5	78	27	.35	67	14	.21*
	6	80	23	.29	69	28	.41
	7	81	43	.52	69	43	.62
	8	80	20	.25	68	11	.16
Series VI	1	80	6	.08	69	2	.03
	2	80	1	.01	69	1	.01
	3	74	18	.24	69	32	.46***
	4	80	15	.19	67	8	.12
	5	78	25	.32	68	21	.31
	6	80	33	.41	69	27	.39
	7	78	35	.45	66	21	.32
	8	72	13	.18	63	6	.10
Series VII	1	75	25	.33	65	8	.12***
	2	76	11	.14	68	11	.16
	3	77	9	.12	68	10	.15
	4	73	3	.04	64	1	.02
	5	77	2	.03	68	2	.03
	6	71	0	.00	65	1	.02
	7	75	10	.13	66	3	.05*
	8	75	53	.71	65	39	.60
Series VIII	1	75	1	.01	63	2	.03
	2	74	16	.22	64	6	.09*
	3	74	0	.00	60	0	.00
	4	75	1	.01	65	0	.00
	5	64	0	.00	49	0	.00
	6	66	0	.00	56	0	.00
	7	73	17	.23	65	17	.26
	8	62	7	.11	53	1	.02*

* $P < .05$, one-tailed test

** $P < .025$, one-tailed test

*** $P < .01$, one-tailed test

only one or two children succeeded and which, therefore, might be reasonably assigned to chance, 23 of the 30 items favor the experimental. In either case, the low probability of the proportion of experimental over control being due to chance ($\chi^2 < .05$) indicates that the hypothesis is supported.

There is a second way to look at these results. There are eight items on which experimental infants are significantly superior to the controls, and one item, VI-3 on which controls were superior to experimentals. This one task is a non-verbal categorizing exercise developed from the work of Ricciutti. Personal correspondence with him indicates that one might expect the direction to be as we found it. In some work on the effects of nutrition on development, performance on this type of task also favored those who were in the "malnourished" group. The eight items on which experimental infants exceed their controls include vocalization activities, item (IV-1) object permanence tasks (IV-4, VII-1, and VIII-2) language games (V-3, V-5, and VIII-8) and a small muscle task (VII-7). It is particularly noteworthy that experimentals were significantly different from control children on the object permanence tasks which were in the seventh and eighth series because children were not normally exposed to these series in the course of stimulation. Analysis of Parent Educator reports of their introduction of series materials shows that most often children had reached only into the sixth series by the time of their first birthday. This suggests that experience on earlier object permanence tasks had a generalizing effect on performance on these later tasks at age one.

A third way to examine the data is to note the relative ordinal placement of series items. If one looks at the control scores as an indicator of "natural" transaction between the child and his environment in these homes, then generally the series are in an appropriate order - that is, series IV is easier than V, which in turn is easier than VI and so forth. However, particular items are misplaced. For example, item VII-8 really belongs in series V and items VI-1 and VI-2 belong in series VIII. The stimulation materials in Appendix B represents a restructuring of items based upon these data. Therefore, Appendix B presents the above series material with their old numbers. We maintained the use of old numbers in testing and teaching so as not to introduce more confusion into the system. It is clear that several items in the series materials are far too difficult for any of our 12-month olds when they are presented in a test situation.

Hypothesis 1-A is supported.

Hypothesis 1-B was that children whose mothers were educated on stimulation series would score higher on standardized measures of development than those mothers who received no instruction. Our standardized measure was the "Griffiths Mental Development Scale." (Griffiths, 1954). The Griffiths Scale items are distinct from the items in the stimulation series and from the materials developed for the C₃ group, so that the scale provides an independent measure for testing the hypothesis of the effects of stimulation in the first year of life. There are five sub-scales on the Griffiths called Locomotor, Personal-Social, Hearing and Speech, Eye and Hand, and Performance. Since a directional hypothesis was made, the probability stated on Table 3.15 is in terms of

TABLE 3.15

Mean and Standard Deviations of Experimental and Control Infants on the "Griffiths Mental Development Scale" at 12 Months

Griffiths Variables	Experimental (N=109)		Control (N=84)	
	X	SD	X	SD
General Quotient	111.10*	10.00	107.18	9.47
Locomotor	121.54	18.41	119.13	17.33
Personal-Social	109.17*	8.76	105.26	9.70
Hearing & Speech	101.15*	15.31	94.06	13.77
Eye & Hand	113.43*	11.26	108.84	10.45
Performance	109.96	13.92	108.96	13.17

* Superior to controls, $p < .005$, one-tailed test.

one-tailed test. Since we tested (for hypothesis 4) the differences between the E₂ and C₃ groups and found none, (Table 3.29) we combined the C₃ population with the rest of the experimental groups for testing hypothesis 1. The data indicate that on all but the Locomotor and Performance scales of the Griffiths Scale the means of the experimental group significantly exceed the means of the control population. The experimental population consists of all E₁, E₂, and C₃ babies whose mothers were visited at least 17 times and the control population consists of all C₁, C₂, and C₄ babies who were tested at 12 months. The C₄ population, which served as a direct control for groups E₂ and C₃ since they were born in the same few months, differ from the original

control groups on the Hearing and Speech score. The new control babies have a lower mean. However, we combined all controls in testing the first hypothesis.

Of special note is that the Locomotor scores are the highest and that Hearing and Speech are the lowest. Although these are presented as independent scores, the Griffiths Scale has not been factor analyzed, and our data suggest that these are not discrete dimensions. Table 3.16 presents the intercorrelation matrix of the Griffiths Scale for these 109 experimental babies. The lowest correlations are between the Locomotor and Hearing and Speech scales. Note that Hearing and Speech is also relatively independent of Eye and Hand and Performance. We might infer that Hearing and Speech is a more environmentally influenced variable, and that the more "physical" scales may be more biologically influenced in the first year of life.

TABLE 3.16

Intercorrelation Matrix, "Griffiths Mental Development Scale" at 12 Months (N=109)

Variables	1	2	3	4	5	6
1. General Quotient		.80	.72	.69	.76	.74
2. Locomotor			.50	.35	.57	.46
3. Personal-Social				.56	.43	.36
4. Hearing & Speech					.36	.37
5. Eye & Hand						.52
6. Performance						

Hypothesis 1C was that children whose mothers were educated in the stimulation series would have more awareness of color and race than those of mothers who received no instruction. This hypothesis was not tested because the Racial Awareness test was too difficult to administer to the twelve month olds. Racial Awareness tests were administered at twenty-four months and the results are reported as hypothesis 2C.

Hypothesis 2 was that at the end of their second year of life children whose mothers were educated continuously since the children's third month would be more highly developed than either those children whose mothers received instruction in either the child's first or second year or those children whose mothers received no instruction. To test this hypothesis we utilized both the series materials and the Bayley test scores.

Hypothesis 2A was that these differences would be reflected in performance on series tests in the same fashion as in the first year. Table 3.17 presents the data on the children of experimental mothers who were in the project from three months to 24 months and who had a minimum of 17 visits in the first year and 25 in the second, compared to the 27 mothers who were in the control group throughout the same period of time. On a signs test counting the 22 items on which there was a difference between the two groups and more than one child in a group succeeded, 15 items favor the experimental children. This probability is better than $p < .05$ that such a ratio would not have occurred by chance.

A second way to look at the data is that on four of these items, VI-8, VII-5, VII-6, VII-7, the proportion of experimental children who passed significantly exceeded that of the control children. These tasks

are water play with varying shapes of containers, handing the mother different size blocks, grouping a set of blocks around an object in imitation of the mother and folding a piece of paper, one of the tasks which also discriminated at 12 months.

It is also evident from Table 3.17 that the tasks in series VII and VIII except for VII-8 and VIII-7, prove difficult for these children to master in a testing situation. All of the experimental children should have been exposed to all of these tasks before reaching age two, and Parent Educators had indicated that the children were able to achieve them. However, in the test situation many did not do so. The series tests were administered in the home by a white graduate student examiner in the presence of the mother and the Parent Educator. The testers did not know which children were experimental and control because a Parent Educator set up the appointment and accompanied them to each setting. In discussing Hypothesis 2B the effects of the examination situation on performance will be seen as more serious than in the home conditions under which the series instrument was administered.

Table 3.18 compares the same 24 children with the 32 children whose mothers received instruction in the first year but who were moved into a control population in the second year. On the signs test 20 of the 23 differences favor the two year experimental group. Three items are significant. Two of these (VII-8 and VII-6) are the same as items differentiating experimental and control children. In addition, item VIII-4, handing the mother a correctly colored block, is the third significant item.

TABLE 3.17

Proportions of Successes on Series Items at 24 Months,
Experimental and Control Group

		Experimental Children (N=24)			Control Group (N=27)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	24	11	.46	27	8	.30
	2	24	11	.46	27	10	.37
	3	24	17	.71	27	23	.85
	4	23	17	.74	27	21	.78
	5	23	19	.83	26	17	.65
	6	24	23	.96	27	23	.85
	7	24	10	.42	27	15	.56
	8	23	23	1.00*	25	21	.84
Series VII	1	23	8	.35	27	8	.30
	2	24	15	.63	27	15	.56
	3	24	7	.29	27	8	.30
	4	24	10	.42	26	6	.23
	5	24	6	.25*	27	2	.07
	6	24	4	.17*	26	0	.00
	7	23	9	.39	27	4	.15
	8	23	21	.91	27	21	.78
Series VII	1	24	7	.29	27	11	.41
	2	23	15	.65	27	18	.67
	3	23	3	.13	27	5	.19
	4	24	4	.17	27	3	.11
	5	20	1	.05	25	0	.00
	6	21	0	.00	26	1	.04
	7	24	23	.96	27	23	.85
	8	23	8	.35	25	8	.32

* $p < .05$, one-tailed test

TABLE 1.10

Proportions of Successes on Series Items at 24 Months,
Experimental and First Year Only Groups

		Experimental Children (N=24)			Experimental and Control Children (N=32)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	24	11	.46	32	12	.38
	2	24	11	.46	32	8	.25
	3	24	17	.71	32	22	.69
	4	23	17	.94	32	28	.88
	5	23	19	.83	32	23	.72
	6	24	23	.96	32	27	.84
	7	24	10	.42	32	13	.41
	8	23	23	1.00*	31	26	.84
Series VII	1	23	8	.35	32	6	.19
	2	24	15	.63	32	17	.53
	3	24	7	.29	32	8	.25
	4	24	10	.42	32	12	.38
	5	24	6	.25	32	5	.16
	6	24	4	.17	32	0	.00
	7	23	9	.39	31	5	.16
	8	23	21	.91	32	28	.88
Series VIII	1	24	7	.29	32	5	.16
	2	23	15	.65	32	22	.69
	3	23	3	.13	31	2	.06
	4	24	4	.17*	32	1	.03
	5	20	1	.05	29	0	.00
	6	21	0	.00	31	2	.06
	7	24	23	.96	32	29	.91
	8	23	8	.35	30	8	.27

* $p < .05$, one-tailed test

Table 3.19 presents the comparison between the same experimental children and a group of 17 children who were in the control group in the first year and moved into the experimental group in their second year of life. There is no significant difference in the proportion of success between these two groups, nor do they differ significantly from each other on any item.

We had made a general hypothesis that differences between groups would be a function of length as well as time of instruction. That is, the longer and earlier the instruction the greater the difference. Therefore, part of the test of Hypothesis 2 was a comparison of those who received only the first year of instruction with the control children and those who received only the second year of instruction with the control children. Hypothesis 3, to be presented later, describes the differences between the first year only and second year only children.

Table 3.20 presents the data comparing the first year only stimulation group against the controls. The hypothesis that the former would be superior must be rejected. On the signs test the proportion of experimental children who did better than control children is no better than chance.

The children of those who received parent education in the second year of life are clearly superior to the control population. Out of 22 items on which there might be a difference, 17 favor the experimental group. On four of these items, VI-8, VII-4, VII-6, VII-7, their proportion of success significantly exceeds that of the controls. (Table 3.21).

The tables just presented make no allowance for the fact that some of the children included on them might have missed taking the 12-month

TABLE 3.19

Proportions of Successes on Series Items at 24 Months,
Experimental and Second Year Only Groups

		Experimental Group (N=21) (N=24)			Control/Experimental Group (N=17) (N=17)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	24	11	.46	17	5	.29
	2	24	11	.46	17	6	.35
	3	24	17	.71	17	13	.76
	4	23	17	.74	17	15	.88
	5	23	19	.83	17	13	.76
	6	24	23	.96	17	16	.94
	7	24	10	.42	17	9	.53
	8	23	23	1.00	17	17	1.00
Series VII	1	23	8	.35	17	8	.47
	2	24	15	.63	17	11	.65
	3	24	7	.29	17	6	.35
	4	24	10	.42	17	9	.53
	5	24	6	.25	17	4	.24
	6	24	4	.17	17	4	.24
	7	23	9	.39	17	7	.41
	8	23	21	.91	17	14	.82
Series VIII	1	24	7	.29	17	7	.41
	2	23	15	.65	17	13	.76
	3	23	3	.13	13	1	.06
	4	24	4	.17	17	2	.12
	5	20	1	.05	15	3	.00
	6	21	0	.00	17	0	.00
	7	24	23	.96	17	16	.94
	8	23	8	.35	17	8	.47

TABLE 3.20

Comparison of First Year Only with Controls,
24 Months Series Performance

		First Year Only (N=32)			Control (N=27)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	32	12	.38	27	8	.30
	2	32	8	.25	27	10	.37
	3	32	22	.69	27	23	.85
	4	32	28	.88	27	21	.78
	5	32	23	.72	26	17	.65
	6	32	27	.84	27	23	.85
	7	32	13	.41	27	15	.56
	8	31	26	.84	25	21	.84
Series VII	1	32	6	.19	27	8	.30
	2	32	17	.53	27	15	.56
	3	32	8	.25	27	8	.30
	4	32	12	.38	26	6	.23
	5	32	5	.16	27	2	.07
	6	32	0	.00	26	0	.00
	7	31	5	.16	27	4	.15
	8	32	28	.88	27	21	.78
Series VIII	1	32	5	.16	27	11	.41*
	2	32	22	.69	27	18	.67
	3	31	2	.06	27	5	.19
	4	32	1	.03	27	3	.11
	5	29	0	.00	25	0	.00
	6	31	2	.06	26	1	.04
	7	32	29	.91	27	23	.85
	8	30	8	.27	25	8	.32

* $p < .05$, two-tailed test

TABLE 3.21

Comparison of Second Year Stimulation Group with Controls,
24 Months Series Performance

		Second Year (N=17)			Controls (N=27)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	17	5	.29	27	8	.30
	2	17	6	.35	27	10	.37
	3	17	13	.76	27	23	.85
	4	17	15	.88	27	21	.78
	5	17	13	.76	26	17	.65
	6	17	16	.94	27	23	.85
	7	17	9	.53	27	15	.56
	8	17	17	1.00	25	21	.84*
Series VII	1	17	8	.47	27	8	.30
	2	17	11	.65	27	15	.56
	3	17	6	.35	27	8	.30
	4	17	9	.53	26	6	.23*
	5	17	4	.24	27	2	.07
	6	17	4	.24	26	0	.00**
	7	17	7	.41	27	4	.15*
	8	17	14	.82	27	21	.78
Series VIII	1	17	7	.41	27	11	.41
	2	17	13	.76	27	18	.67
	3	16	1	.06	27	5	.19
	4	17	2	.12	27	3	.11
	5	15	0	.00	25	0	.00
	6	17	0	.00	26	1	.04
	7	17	16	.94	27	23	.85
	8	17	8	.47	25	8	.32

* $p < .05$, one-tailed test

** $p < .01$, one-tailed test

series because of illness or other difficulties that delayed the test appointment past a reasonable time. In order to control for this factor, we selected from our population all those children in the four groups (two year experimental, first year only, second year only and control) who had both 12 and 24 month series tests and compared the ratios of successes at these two periods of time for these children. Table 3.22 lists these proportions. Our hypothesis was that children

TABLE 3.22

Proportions of Success on Series VI, VII, VIII, for
Matched Groups at 12 and 24 Months

Groups	12 Month Test	24 Month Test
E(N=22):E/C(N=24)	10:7	17:6**
E : C/E(N=15)	12:5*	10:9
E : C/C(N=14)	14:2**	17:4**
E/C : C/E	13:5 ^A	4:18**
E/C : C/C	15:3**	12:9
C/E : C/C	12:5**	15:8**

* $p < .05$, two-tailed test

** $p < .01$, two-tailed test

^A $p < .05$, one-tailed test

in E or E/C would be superior to children in C/E or C/C at 12 months (Hypothesis 1). This is reconfirmed for these children, although the controls who were later assigned to the experimental condition for the second year (C/E) were significantly better than the controls who stayed in the control condition even at the 12 month point. Families were randomly assigned from the general control condition into second year experimental and control. This randomization obviously did not prevent us from

having unmatched samples assigned to the two new conditions, and gave a decided advantage to the C/E group. Another way to look at this is to realize that only 15 C/E's and 14 C/C's had both measures. It may be that differential attrition in the second year rather than a randomization procedure that went awry is responsible for what looks like poor assignment to treatment conditions. It will also be noted that the two E groups (E/E and E/C) were far superior to the C/C group at 12 months, and that the experimentals who were assigned to the control condition for the second year were better than the controls assigned to the experimental condition for the second year (E/C to C/E), at a probability level of .05 because we made a directional hypothesis. All the other differences at twelve months are much less likely to have been due to chance.

With this in mind, we can reexamine the 24-month data. Our hypothesis here was that the experimental group who had been with us for the two years would be superior to the control children. The ratio of 17 to 4 supports this hypothesis. Further, we had hypothesized that either group which had been home visited (E/C or C/E) would be superior to the control babies. This is supported in the case of the C/E group but unsupported in the case of the only first year education (E/C) group. Note that the C/E group at the beginning was superior to the C/C group, which may raise some doubts about whether they gained until we note that they have now drawn even with the two year experimental group at 24 months although they were significantly below them at the 12 month period. Further, we now have a reversal between the ratio of the E/C to C/E group between the 12 month period and the 24 month period which will be discussed further in hypothesis 3.

The order of success across these four groups would rank the experimental group first, the C/E group second, the E/C group third and the pure controls fourth, although the difference between third and fourth position are not significant. The hypothesis is thus mostly supported. The only group which did not live up to our expectation was the group which received stimulation in the first year only. This may be partly due to the selective factor of assignment to second year group. On the average, experimental children assigned to control condition were originally a little less successful at 12 months than other experimental babies, and control children assigned to experimental conditions at 12 months were superior to those who remained in that status. There was no way to avoid this through the randomization procedure. The only possible technique to avoid it would have been to wait until after test results were in to make assignments to the second year. This would have been extremely difficult and impractical to implement, because their birthdays covered a span of five months and children had to be assigned before reaching their birthday and without knowing their relative position in respect to all the remaining untested babies.

It is clear, without any question, that the children with two years of experimental experience are best and that the children with no experience are the poorest.

Hypothesis 2B

The second means of testing Hypothesis 2 was through the use of the Bayley Scales. Four doctoral students were trained in administration and developed a high degree of reliability before administering the Bayley

Scales to the two-year-olds. All tests were administered in the outpatient suite of the Human Development Center of the J. Hillis Miller Health Center. These students early felt that the test situation and the test itself would not yield clear measures of the performance of the two-year-olds they were testing. Therefore, they drafted the following statement to represent their reservations:¹ "The use of the Bayley Scales of Infant Development with black disadvantaged youngsters presents a validity problem not unique to this particular test. The points on which we will focus are probably equally relevant for any 'intelligence test' designed for infants and used with non-whites.

The nature of the testing environment is inhibiting and often terrifying for the two-year-olds. They are brought to the Medical Center, a huge, strange place busy with people - white people. Also the doctors present may be a separate fear-producing stimuli. The white examiner is usually regarded with suspicion, fear, and sometimes hostility by the babies.

The whole area of language assessment is closely linked to the inhibiting test environment. The manifestation of the fear is usually very reduced verbalizations, sometimes an entire session with no vocalizations. The Bayley Mental Scale is heavily loaded with language items which score higher depending on the number of verbalizations (e.g. how many items named?). The question of retarded language development in this population is unresolved, but the Bayley Scale (as we administer it) only serves to

¹This statement was prepared by D. Kronstadt, G. Scott, G. Weld, and M. Resnick. See also paper by M. Resnick, G. Weld and J. R. Lally in Appendix F.

reinforce the weakest way to elicit language from these babies. The reduced language shown during testing may also influence performance on some non-language items - (e.g. blue form board, with instructions).

Another problem in the testing is the lack of interest and motivation in these youngsters. They are usually passive and lethargic in their attitude toward test items (as opposed to middle-class children who can't wait to show how well they do and get on to the next task).

Finally, the question of establishing rapport with babies from this population is difficult. Often things that will win over a white middle class baby will only startle or make the black infant more fearful. (e.g. swinging in the air).

One area is open to question as a possible positive side to the issue of testing black two-year-olds. The traditionally negative "terrible two's" syndrome appears not to be there. These babies are passive and accepting probably because of their inhibitions, but this may provide a little help in the test situation."

In spite of the above reservation we were committed to the Bayley Scales and will therefore report the data although their reservations must be taken quite seriously.

On the basis of the data in Earl Schaefer's project with infants in Washington, we decided to add a measure of task orientation to the mental and motor scales. Table 3.23 presents the task orientation items used by Schaefer from the Bayley Infant Behavior Profile. We did this because we thought that task orientation rather than score, considering the comments of the testers, might differentiate among the groups.

TABLE 3.23

Schaefer's Task Oriented Items from the Bayley Infant Behavior Profile¹

4. Object Orientation ²			
7. Goal Directedness			
8. Attention Span			
9. Cooperativeness			
36. Test Adequacy ²			
<u>Group</u>	<u>Age</u>	<u>X</u>	<u>SD</u>
Experimental (N=28)	21 Months	25.5	5.3
Control (N=30)		24.4	5.2
Experimental (N=27)	27 Months	26.8*	6.5
Control (N=29)		22.9	6.4

¹Personal correspondence with Earl Schaefer

²All items on 9 point scale, except test adequacy, which is a 5 point scale.

Maximum possible score = 41

*Higher than controls, $p < .05$

Assignment of half the former experimentals to the control population and half the former controls to experimental population at twelve months was done from a table of random numbers. However, as we saw in Table 3.22, this may have led to unmatched groups. We, therefore, use the scores on the Griffiths Scale as covariates to examine whether the randomization had worked out in fact. Table 3.24 presents the Griffiths scores at 12 months and the unadjusted Bayley means. Table 3.25 presents the adjusted Bayley scale means after all of the Griffiths scales

TABLE 3.24

Test Scores Means at 12 and 24 Months,
Before Adjustment of Bayley Means

Variables	Group			
	Exp. (2 years)	E/C (first year only (N=28))	C/E (second year only (N=20))	Control (N=26)
GIQ	111.08	111.82	109.10	106.31
Locomotor	118.31	126.23	122.70	119.16
Personal-Social	108.55	107.57	107.80	103.06
Hearing & Speech	101.65	99.42	95.87	95.47
Eye & Hand	113.97	114.93	111.00	106.95
Performance	112.11	110.68	109.20	108.03
Bayley Mental	85.64	80.39	87.95	85.56
Bayley Motor	102.28	95.93	102.95	102.65
Bayley Task Orientation	22.60	23.57	26.90	25.54

TABLE 3.25

Adjusted Bayley Scale Means

Variables	Exp. 2 years	Exp. 1st yr.	Exp. 2nd yr.	Control	F
Mental	85.39	79.52	88.10	86.63	2.16
Motor	103.15	95.27	102.03	103.24	.59
Task Oriented	22.25	23.39	26.83	26.12	2.10

had been used as covariates. The F ratio indicates that this procedure, although conservative, did not affect the means to any substantial degree. On the basis of the data in Table.3.25, the hypothesis that experimental groups would be superior to controls on the Bayley Scales must be rejected. Although we find differences when the Series data is used, these differences are not observable on the Bayley Scales under the conditions in which these children are evaluated..

Hypothesis 2C was that children in experimental groups would have more awareness of color and race than would control children. This hypothesis had been developed by Dr. Jacquelin Goldman, whose report follows:

This study was designed to investigate the importance of the ability to learn on the basis of color for the appearance of racial awareness in young white and Negro children. Racial awareness has been studied and confirmed in children at three years of age by several investigators (Clark & Clark, 1940; Landreth & Johnson, 1953; Morland, 1958; Springer, 1950; Stevenson & Steward, 1958). More recently, Morland has found that white children and particularly white southern children, could recognize white and Negro photographs as such and that white children, when asked which child they looked most like, made more frequent like-race choices than did Negro children.

Fowler (1962),, has surveyed cognitive learning in infancy and childhood and reports that color discrimination is well-developed by ages three and four. This fits within the overall organization suggested for cognitive development by Piaget, as the transitional period between motor behavior and toward internalization and conceptual activities.

Harry (1967), reviewed the literature with regard to the color concept, color learning and discrimination, and found that form precedes color as the basis for discrimination in children and that color is probably firmly established as an abstract concept between the ages of 2½ and 4 years of age.

In a study using only white subjects, Harry (1967) examined children between two and five years of age. She found the biggest increment in racial awareness and in color learning occurred between ages three and four. Some of her subjects who did not perform on a photograph sorting test could identify Negroes when asked to do so. Her results did not indicate that either racial awareness or color learning as such were necessary prerequisites for each other.

If, as the work of Piaget, Gray, Hunt, and others suggest, the input of patterned experience is important in providing the basis for generalized abstract concepts, then children who have such early experience should develop concepts such as race earlier and more stably than children who have none or little of this type of experience.

Although we do not have an arbitrary age at which investigators agree that racial awareness occurs, the earliest limits seem to be around 18 months to two years. Children of this age range, therefore, are the appropriate subjects for this investigation. Likewise we assume that the patterned input, small though it may be, derived from participation in an enrichment study, should facilitate the development of racial awareness. If so, it may be expected that: for both

white and Negro children, racial awareness (RA) will not occur unless the subjects demonstrate ability to learn a task based upon the use of color. Both white and Negro children will show greater RA and color learning (CL), according to the amount of time spent in the project. Negro children will show greater RA and CL according to the amount of time spent in the project (includes a group of Negro children with no experience in the project).

Method

Subjects

It was originally planned to choose children on the basis of race and length of time within the project. Fifteen children were planned for groups with two years participation during the first year only, participation during the second year only and control subjects. It was expected that a full representation could be obtained for the Negro sample but not for the white sample. The actual representation is shown in Table A. The original design had to be discarded because of the poor representation.

TABLE A

Representation

Experience Group	Negro		White	
	Male	Female	Male	Female
Two Years	7	6	2	2
First Year	7	9	0	0
Second Year	7	6	4	2
Control	7	4	1	2
	28	25	7	6
Total	53		13	

Procedure

The same general procedure was used with this study as that employed by Harry (1967). The child was made comfortable with the examiner (Parent Educator) and invited to play a game. If he was willing the examiner placed before the child ten photographs, five Negro and five white, and asked the child to sort them. Harry's study had shown that some very young children (around the ages of our children) would not respond to the instruction "put the ones that go together in a pile" but would respond to "the ones that look alike to you" or "the ones that play together." Our present instructions were modified to get the baby to sort with more specific instructions: "the ones you like, the pretty ones, daddy, mommy, light, dark." Just as in Harry's study, if any sortings were done on the basis of race, the child was considered racially aware. This initial racial awareness test was considered a pretest.

Next the child was presented with a set of cards. If he selected the color card (only one of five cards) he was rewarded verbally and with an individually chosen reinforcement (candy, potato chips, or some other preferred food). If the children made an error, the correct card was pointed out and children were presented the next set of cards. Five consecutive correct responses was the criterion for learning. The maximum number of trials presented to any child was 20. Regardless of the total number of correct responses, a subject was considered a non-learner if he did not score five consecutive correct trials.

Following the pretest and the color learning task the children were retested on the racial awareness task.

Results

Inspection of the data indicated that the procedures for Part III, in which the children were retested after the color learning task, did not result in adequate sampling to test the hypothesis that color learning was necessary for racial awareness. Because of the small sample size only a few more global questions could be addressed by the data.

Most of the children could not be considered racially aware on the photograph task. The probability of correct solution was .167 for any given trial and .67 for one significant trial in the six trials given each child. The fact that so many children could not perform the task at such lenient levels probably indicates the task difficulty at this age level. As Table B indicates, the performance of the children does not exceed that expected by chance on the racial awareness task. Results at less than chance level on the racial awareness task

TABLE B

Racial Awareness: Pretest

Group	Negro	White
Experimental	25 (65%)	2 (20%)
Control	3 (20%)	2 (67%)

could have been due to task difficulty, to lack of racial awareness, to awareness but irrelevance of the concept to the task as perceived by the children, or to some other variable. If so, then all experience groups and both racial groups should be distributed proportionally for

racial awareness even at below chance level of performance. This was the next question addressed by the data.

Considering only the Negro sample, when all experience groups were pooled and tested against control children on the pretest (Part I), it was found that experience children tended to be more racially aware (Chi Square = 2.42, df = 1, $.20 < p < .10$). On the color learning task analysis indicated that control children tended to learn the task better than experience groups (Chi Square = 3.72, df = 1, $.10 < p < .05$).

Comparison by race was even more limited. The thirteen white children were matched with 13 Negro children for experience and control conditions. Fisher's exact probability test was calculated for both the pretest racial awareness and for color learning. Both tests yielded a probability of .34, indicating no racial differences either in awareness or learning.

The results of this study must be considered highly tentative because of small sample size and incomplete tests of the original hypotheses. Only the third hypothesis could be approached, and that was in a reduced sense which pooled all experience groups.

Discussion

The present findings suggest that across all children neither race nor experience affects racial awareness in children between two and three years of age. Within subjects analyses indicate that among Negro children in our sample, children tended to be more racially aware if they were in an enriched experience group, but they did not perform better on the color task. Because of the limited data, relationship between color learning and awareness could not be studied.

Limited as these results are they are consistent with the view that experience does not affect basic capacity to learn, but that it may influence early acquired knowledge, in this case on a dimension which plays an important part in developing personal and social identity.

Harry's study found that some children were able to identify photographs by race even when they did not sort for race in a free choice situation. Most of her children did not sort for race before age three. Work by Ricciuti (1965) indicates babies 12-24 months of age can group three-dimensional objects. It may be that the racial awareness task, being two-dimensional, is too complex to test adequately for racial awareness, and that the current procedure, which works well with subjects above three years of age, should be put in a three-dimensional format for administration to younger children.

Hypothesis 3 was that at the end of their second year of life children whose mothers were educated in only the first year would be developmentally more advanced than children whose mothers were educated only in the second year. Both the series and the Bayley data lead (Table 3.25) to a rejection of this hypothesis. Table 3.26 presents the series data on those who received stimulation in the first year only versus those who received it in the second year only.

On the basis of a signs test, the hypothesis that first year only would be superior to second year only must be rejected. The second year only group was clearly superior to those who were stimulated in the first year only. When the more stringent analysis represented in Table 3.22 is applied, which takes into account both 12 and 24 months scores for the same children, the difference is more sharply defined. At the 12 month point, for those children on whom we had both year series data,

TABLE 1.20

Comparison of First Year Only with Second Year Only,
24 Months Series Performance

		First Year Only (N=32)			Second Year Only (N=17)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	32	12	.38	17	5	.29
	2	32	8	.25	17	6	.35
	3	32	22	.69	17	13	.76
	4	32	28	.88	17	15	.88
	5	32	23	.72	17	13	.76
	6	32	27	.84	17	16	.94
	7	32	13	.41	17	9	.53
	8	31	26	.84	17	17	1.00
Series VII	1	32	6	.19	17	8	.47
	2	32	17	.53	17	11	.65
	3	32	8	.25	17	6	.35
	4	32	12	.38	17	9	.53
	5	32	5	.16	17	4	.24
	6	32	0	.00	17	4	.24*
	7	31	5	.16	17	7	.41
	8	32	28	.88	17	14	.82
Series VIII	1	32	5	.16	17	7	.41
	2	32	22	.69	17	13	.76
	3	31	2	.06	16	1	.06
	4	32	1	.03	17	2	.12
	5	29	0	.00	15	0	.00
	6	31	2	.06	17	0	.00
	7	32	29	.91	17	16	.94
	8	30	8	.27	17	8	.47

* $p < .05$, two-tailed test

the first year only children were more successful than the second year only children. This status is drastically reversed at the 24 month point when the second year only children are more successful on 18 out of 22 series items on which there are differences. The Bayley data indicate that, although differences are not statistically significant, the first year only group has the lowest mean scores.

For this population, using this particular program, the hypothesis that earlier intervention would be more powerful was not supported. Whatever made the experimental group better than the control children at the end of the first year were washed out by two years of age, and stimulation via parent education in the second year enabled children who received only this to be superior to those whose mothers were home visited in the first year. This should not be taken to mean that the "critical period" hypothesis must be rejected. There are many missing links between an adequate test of that hypothesis and what was actually carried out in this project. We will comment further on these results in the next chapter when we discuss implications of our findings.

Hypothesis 4 was that at the end of the first year of life children whose mothers were educated in the series would be more highly developed than those mothers who received a different pattern of instruction of an equal length of time. In order to test this hypothesis, group E₂ (series) and group C₃ (other materials) were compared on both the series and Griffiths. The Griffiths data are presented in Table 3.27 and the Series data on 3.28. There is no significant difference in proportion of successes between the two groups. The E₂ group was better on fourteen items and the C₃ group better on sixteen. These children were all tested on the

Series in their homes by examiners who had no knowledge of group assignment. There are no significant differences on the Griffiths Scale variables.

TABLE 3.27

Means and Standard Deviations of Series and Other Curriculum Infants on the "Griffiths Mental Development Scale" at 12 Months

Griffiths Variables	Series (N=15) E ₂		Other (N=19) C ₃	
	X	SD	X	SD
GIQ	109.80	8.19	110.53	9.41
Locomotor	115.31	17.50	124.83	19.05
Personal-Social	108.54	5.33	111.68	8.67
Hearing & Speech	101.70	13.63	98.30	17.61
Eye & Hand	113.38	12.77	113.20	11.42
Performance	109.04	12.80	104.61	12.32

This finding did not surprise us in view of the statements by Weikart and Palmer at the May, 1969 conference of the Social Science Research Council in which they reported that, in their stimulation and intervention programs, children who were taught or exposed to different curricula did not differ in their performance. Further, as we indicated in Chapter 2, the materials developed for the C₃ group, although different from the series, overlap substantially in many respects. A significant factor seems to be that the curriculum be somewhat systematic, planned and specific, rather than that it relate primarily to a single, theoretical position.

TABLE 3.26

Proportions of Successes on Series Items at 12 Months,
Series Curriculum and Other Curriculum

		Series (E ₂) (N=15)			Other (C ₃) (N=18)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	15	5	.33	18	5	.28
	2	15	12	.80	18	14	.78
	3	15	10	.67	18	13	.72
	4	15	14	.93	18	16	.89
	5	15	11	.73	16	10	.63
	6	15	4	.27	18	2	.11
Series V	1	15	12	.80	18	13	.72
	2	15	8	.53	18	15	.83
	3	13	2	.15	16	0	.00
	4	15	10	.67	18	10	.56
	5	15	2	.13	17	7	.41
	6	15	5	.33	18	7	.39
	7	15	5	.33	18	8	.44
	8	15	4	.27	18	3	.17
Series VI	1	15	0	.00	18	0	.00
	2	15	0	.00	18	0	.00
	3	15	6	.40	18	7	.39
	4	15	1	.07	18	4	.22
	5	14	0	.00	18	8	.44*
	6	15	4	.27	18	8	.44
	7	15	8	.53	18	8	.44
	8	15	4	.27	16	5	.31
Series VII	1	13	3	.23	17	7	.41
	2	14	2	.14	18	3	.17
	3	14	0	.00	18	5	.28*
	4	14	1	.07	18	1	.06
	5	14	0	.00	18	0	.00
	6	14	0	.00	16	0	.00
	7	14	0	.00	18	1	.06
	8	14	8	.57	17	11	.65
Series VIII	1	14	1	.07	18	0	.00
	2	13	1	.08	17	4	.24
	3	14	0	.00	18	0	.00
	4	14	1	.07	18	1	.06
	5	10	0	.00	11	0	.00
	6	11	0	.00	16	0	.00
	7	14	2	.14	18	8	.44
	8	14	1	.07	15	1	.07

* $p < .05$, two-tailed test

Since we found no differences between these stimulation groups, we then asked whether these groups, when combined, differed from their own control group of babies who were born when they were born and randomly assigned to the control condition. Table 3.29 presents the data on the Griffiths Scales which indicate that on two of the scales, Speech and Hearing and Personal-Social, the children whose parents were in the parent education program were superior to the control children. As in the case of all the babies who have been tested at age one, the Locomotor scores are the highest and Speech and Hearing are the lowest.

TABLE 3.29

Means and Standard Deviations, New Experimental Children
(E₂, C₃) and Their Controls (C₄) on the
"Griffiths Mental Development Scale"

Variables	Experimental (N=34)		Control (N=23)	
	X	SD	X	SD
General Quotient	110.21	8.90	107.57	7.17
Locomotor	120.62	18.98	120.84	17.07
Personal-Social	110.30*	7.55	105.61	9.20
Hearing & Speech	99.80**	15.03	89.89	7.44
Eye & Hand	113.28	12.03	111.57	9.46
Performance	106.57	12.72	109.09	9.43

* $p < .025$, one-tailed test

** $p < .005$, one-tailed test

Hypothesis 5 was that there would be no difference between those children whose mothers received no instruction or visits and those whose mothers had monthly visits from nurses during the first year. Tables 3.30 and 3.31 present the data. We raised this hypothesis because of the notion held by some people that mere social reinforcement or presence of a visitor in the home might have some effect on the motivational pattern of the mother and thus on the behavior and development of the child.

TABLE 3.30

Means and Standard Deviations on the "Griffiths
Mental Development Scale" (12 Months)

Scale	Nurse Visits (N=17)		No Visit (N=28)	
	X	SD	X	SD
General Quotient	105.7	8.2	108.9	11.0
Locomotor	117.3	14.3	120.8	17.8
Personal-Social	103.8	8.0	106.5	10.4
Hearing & Speech	92.1	11.0	96.4	14.6
Eye & Hand	107.0	11.9	108.8	8.6
Performance	108.1	12.8	111.2	15.7

Table 3.30 indicates that there is no significant difference on the Griffiths Scale between the pure control population and those who received monthly visits from the nurses. Table 3.31 indicates that where there are significant differences between the nurse group and the controls on the series material, the differences favor the pure control population.

TABLE 3.31

Proportion of Successes on Series Items at 12 Months
of Visited and Unvisited Control Infants

		Nurse Visit (N=17)			Pure Control (N=15)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series V	1	17	10	.59	15	10	.67
	2	17	16	.94	15	11	.73
	3	17	3	.18	14	3	.21
	4	17	5	.29	15	10	.67*
	5	17	1	.06	14	3	.21
	6	17	7	.41	15	6	.40
	7	17	5	.29	15	9	.60
	8	17	1	.06	14	3	.21
Series VI	1	17	0	.00	15	0	.00
	2	17	0	.00	15	0	.00
	3	17	15	.88	15	3	.20*
	4	17	1	.06	14	2	.14
	5	17	1	.06	15	8	.53*
	6	17	4	.24	15	6	.40
	7	17	3	.18	14	4	.29
	8	17	1	.06	14	1	.07
Series VII	1	17	1	.06	14	3	.21
	2	17	0	.00	15	4	.27*
	3	17	1	.06	15	2	.13
	4	17	0	.00	15	0	.00
	5	17	2	.12	15	0	.00
	6	17	0	.00	15	0	.00
	7	17	0	.00	15	2	.13
	8	17	14	.82	15	10	.67
Series VIII	1	17	0	.00	15	1	.07
	2	17	2	.12	14	1	.07
	3	17	0	.00	15	0	.00
	4	17	0	.00	15	0	.00
	5	16	0	.00	14	0	.00
	6	17	0	.00	14	0	.00
	7	17	0	.00	15	6	.40*
	8	16	0	.00	15	0	.00

* $p < .05$, two-tailed test

However on a signs test, the differences between nurse visited and control on the number of items passed is not significant. Because of this finding, these two control groups have been combined into a single population for all other analyses of the data and for assignment to second year groups.

Summary

Generally the results concerning our first objective, that the use of disadvantaged women as Parent Educators of indigent mothers of infants and young children would enhance the development of these infants, support that it has been achieved. The children whose mothers were in the project for the total length of time are superior at one year of life on both series tests and Griffiths Scales, and at the end of two years on series performance. Children whose mothers received parent education in the second year are superior to those whose mothers received no such information. The children of mothers who were simply visited and observed periodically, but who received no information, did not perform any differently than children who were not visited at all. The nature of the curriculum, insofar as the series material and the nontheoretical materials are concerned, did not seem to matter in this early phase of life. The one hypothesis which was not supported was that children whose mothers were in the project in the first year would be better than those who received home visits only the second year, and better than control children at the second year point.

Although we will discuss implications at length in the last chapter, a brief statement seems appropriate here. What do these findings mean? If we recall that we were dealing with mothers who entered the project with low self-esteem and with feelings of external orientation, who in

actuality were visited only about two-thirds of the time for which they were scheduled, and this was simply once a week, who received no additional incentives or support for the life situation, whose children were ill at least ten percent of the time, the results are very positive. Changes were wrought with minimal intervention and minimal support. The failure to confirm our expectation of "first year only" raises doubts as to maintenance of change. We have already seen in numerous compensatory programs that change is not maintained. The longitudinal study of these children, now underway, will allow us to explore that issue in more depth. Here we can only say that the use of Parent Educators drawn from disadvantaged populations, who received only a month or so of concentrated training and relatively little supervision, were able to perform their job, maintain contact with mothers, and bring about some measurable differences in the children.

Results in Relation to the Second Objective

The second objective of the program was to bring about a change in the mother's perception of herself and in her language behavior. We reported earlier that mothers entered our project with generally low self-esteem and with generally more external orientations than did some other populations who have been studied with the same measures. Given a minimal intervention program such as this, could change be brought about? Our hope was that through participation in the program a mother would learn to work with her child and would be able to see her child develop, which would lead to growth in her self-esteem and in her feelings that she had more control over her environment.

Hypothesis 6 was that mothers who received instruction in the program would have higher expectancy of internal control than those who did not receive instruction. We were able to test this hypothesis on those mothers who entered the program beginning in the summer of 1967 and whose babies reached one year of age in the summer and fall of 1968. There were 26 experimental mothers on whom we had two Social Reaction Inventories, one when the baby was three months of age and a second when the baby was twelve months of age, and 24 control mothers who met the same condition. In order to allow for the difference in pretest means, we performed a two-way analysis of variance with repeated means to test whether or not the movement of the experimental mothers toward more internal control might be attributed to the treatment. Table 3.32 presents both the means and the analysis of variance information. The data indicate that the experimental mothers at the completion of 9 months of instruction had moved toward a more internal orientation. The interaction effect indicates that the amount of movement of the experimentals compared to the movement of the controls cannot be attributed to chance. An F of 3.12 is significant at the .05 level on the one-tailed test which fits our hypothesis. Hypothesis 6 is confirmed. The program does have an effect on the internal orientation of mothers in the first year.

Hypothesis 7. We had two language hypotheses. Hypothesis 7 was that the language codes of the mother would be affected, and 9 that the paralinguistic language behavior of the mother would be influenced by participation. We are not able to report the language code data at this time. All of the preliminary work has been done and our problems are in computer programming and data analysis. We will render a supplementary report on

TABLE 3.32

Analysis of Variance, SRI Score by Treatment Group

Group	Pre Means	Post Means	Marginal Means	
Experimental (N=30)	10.46	8.69	9.58	
Control (N=26)	9.87	9.67	9.77	
Marginal	10.18	9.16		

Source of Variation	Sum Square	DF	Mean Squares	F
Between Subjects		49		
A. Between Groups	.94	1	.94	.04
Subjects Within Groups	1117.68	48	24.53	5.00
Within Subjects		50		
B. Pre-Post	24.41	1	24.41	
AB Interaction	15.21	1	15.21	3.12*
BX Subject Within Groups	234.29	40	4.88	

this particular hypothesis. Dr. Norman Markel of the Communication Sciences Laboratory has been analyzing these data and will write the supplementary report for Hypothesis 7.

Hypothesis 8 was that mothers who were educated in the series would have higher feelings of self-esteem than those who were not instructed. The same two-way analysis of variance design was used to test this hypothesis as that used to test Hypothesis 6. Tables 3.32 through 3.36 present the data. Unlike the case of internal orientation hypothesis, this

hypothesis was not supported. Involvement in the program for the 9-month period of time for the experimental mothers who joined the program in June, 1967, did not affect their self-reports of self-esteem.

TABLE 3.33

Analysis of Variance, Autonomy Factor of How I See
Myself Scale by Treatment Group

Group	Pre Means	Post Means	Marginal Means	
Experimental (N=30)	23.13	22.67	22.90	
Control (N=26)	23.34	24.88	24.11	
Marginal	23.23	23.70		
Source of Variation	Sum Squares	DF	Mean Squares	F
Between Subjects		55		
A. Between Groups	41.13	1	41.13	1.14
Subjects Within Groups	1950.71	54	36.12	
Within Subjects		55		
B. Pre-Post	7.94	1	7.94	.64
AB Interaction	28.06	1	28.06	2.26
BX Subject Within Groups	669.96	54	12.41	

TABLE 3.34

**Analysis of Variance, Interpersonal Adequacy Factor
of How I See Myself Scale by Treatment Group**

Group	Pre Means	Post Means	Marginal Means	
Experimental (N=30)	58.43	57.57	58.00	
Control (N=26)	64.77	62.65	63.71	
Marginal	61.37	59.93		

Source of Variation	Sum Squares	DF	Mean Squares	F
Between Subjects		55		
A. Between Groups	908.73	1	908.73	4.13*
Subjects Within Groups	11872.19	54	219.86	
Within Subjects		56		
B. Pre-Post	61.81	1	61.81	1.05
AB Interaction	10.77	1	10.77	.18
BX Subject Within Groups	669.96	54	12.41	

* $p < .05$, two-tailed test

Table 3.34 indicates that there was a significant difference between the control and the experimental mothers at entry point in their feeling of Interpersonal Adequacy, the experimental group being significantly lower. Neither changed markedly during the 9-month interval, so that the experimental mothers still report relatively low self-estimates. The same phenomenon is present in relation to estimates of Physical Appearance (Table 3.35). That is, the control mothers rated themselves higher at

both beginning and end than did the experimental mothers. Table 3.36 indicates that both the experimental and control mothers combined reported significantly more favorable attitudes toward self in relation to teachers and school at the time their children were 12 months old than they had when the children were 3 months old. However, the interaction effect is not significant so that the gains of the experimental mothers did not exceed that of the control mothers.

TABLE 3.35

Analysis of Variance, Physical Appearance Factor of
How I See Myself Scale by Treatment Group

Group	Pre Means	Post Means	Marginal Means	
Experimental (N=30)	23.10	23.43	22.27	
Control (N=26)	26.77	27.88	27.32	
Marginal	24.80	25.50		

Source of Variation	Sum Squares	DF	Mean Squares	F
Between Subjects		55		
A. Between Groups	459.23	1	459.23	7.88*
Subjects Within Groups	3147.69	54	58.29	
Within Subjects		56		
B. Pre-Post	14.61	1	14.61	.80
AB Interaction	4.26	1	4.26	.23
BX Subject Within Groups	983.69	54	18.22	

* $p < .01$, two-tailed test

TABLE 3.36

Analysis of Variance, Teacher-School Factor of
How I See Myself Scale by Treatment Group

Group	Pre Means	Post Means	Marginal Means	
Experimental (N=30)	21.73	22.53	22.13	
Control (N=26)	21.35	23.77	22.56	
Marginal	21.55	23.11		

Source of Variation	Sum Squares	DF	Mean Squares	F
Between Subjects		55		
A. Between Groups	5.04	1	5.04	.29
Subjects Within Groups	940.26	54	17.41	
Within Subjects		56		
B. Pre-Post	72.34	1	72.34	6.22*
AB Interaction	18.32	1	18.32	
BX Subject Within Groups	627.57	54	11.62	

* $p < .05$, two-tailed test

Hypothesis 9 was that mothers who were educated in the Series would have different voice qualities (pitch, loudness, tempo) than those who were not. Earlier work by Markel indicated relationships between voice qualities and personality variables. Our expectation was that mothers who were in the experimental group would have a lower pitch, slower rate, smoother texture, and louder voices. In order to test this hypothesis, portable tape recorders were taken into the homes when the children

were approximately twelve months of age, and each mother was asked to look at several Children's Apperception Test cards and make up a story to tell the child. Dr. Markel had developed, prior to this project, a reliable methodology for assessing pitch, loudness, tempo, and texture and a total of 60 samples were submitted to his coders for blind evaluation. A test tape consisting of the responses of 60 subjects was made. The 60 voices were dubbed on to the test tape in random order; each voice was then identified by its test tape number. The test tape was rated for the voice qualities of pitch, loudness, tempo, and texture. The verbal labels attached to these scales, respectively, are: LOW-HIGH; SOFT-LOUD; SLOW-FAST; SMOOTH-ROUGH. These scales for pitch, loudness, and tempo were anchored by having a verbal label for each of 5 scale positions. For example, the scale for pitch was: very LOW, somewhat LOW, average, somewhat HIGH, very HIGH. The scale positions were also numbered from 1 to 5, and the raters used these numbers to indicate their ratings. The scale for texture had 7 positions as a result of adding a "quiet" category on each side of the middle position.

The raters were college students, with no special training in linguistics. They were trained to rate the voice qualities from training tapes for these qualities developed by Markel. For the qualities of pitch, tempo, and texture there were 7 raters for the quality, of loudness there were 9 raters. A total of eight hours were used for training and rating.

The reliability of the raters was estimated by the method developed by Ebel, and specifically followed the procedures described by Gilford (1954). The inter-rater reliabilities for the 4 qualities were as follows: pitch .91; loudness .92; tempo .88; texture .90.

The scores were translated into standard scores, with a mean of 50 and a standard deviation of 10. Table 3.37 presents the data.

TABLE 3.37

Means and Standard Deviations on Paralinguistic Measures

Variables	Groups			
	Experimental (N=29)		Control (N=31)	
	E ₁ + E/C		C/E, C/C	
	X	SD	X	SD
Pitch	48.52	9.21	51.38	8.23
Loudness	50.25	7.93	49.75	8.22
Tempo	48.57	7.41	51.24	7.57
Texture	48.73	7.42	51.19	8.11

Although there were no significant differences between the groups on any of these paralinguistic measures, the experimental mothers were softer in pitch, louder, slower in tempo, and smoother in texture. This suggests that the paralinguistic technique can be used for this type of research, that the measures can be scored reliably, and that it does indicate trends in the expected direction.

Summary

The data relating to the second objective indicate that only in the case of influencing the belief in internal versus external control were we successful in changing the mothers' views of themselves in any significant fashion. A program of intervention as limited as this one, which does not affect the total life conditions, probably could not be expected to make shifts in such a fundamental attitude as self-esteem. It may be

that belief in internal-external control is a more peripheral, situational variable and thus more amenable to change. It is important to know, however, that even though the mother's attitude did not change, her behavior toward her infant changed sufficiently to influence his growth. Anecdotal information reported at the end of this chapter will also indicate that mothers changed their behavior in several ways as a result of program participation. The paralinguistic measure also offers some support for change.

Further, the type of measure of the dependent variable of self-esteem, a self-report scale, may not have been a powerful enough instrument to detect whatever changes might have occurred. Nevertheless, it was the only instrument at our disposal, and scores on it indicate a lack of movement. On the theoretical side, some clinicians have suggested that changes in attitude must precede changes in behavior. Our data suggest that we brought about behavioral changes, but that if there were attitude changes, we were unable to measure them effectively. We cannot say that behavior changes precede attitude changes, but our data suggests this as a strong possibility.

When we entered this project, we realized that attempting to change a mother would be a rather difficult thing to do. We have demonstrated that mothers can learn.

The "critical period" hypothesis is that there is an optimum time for learning particular skills or attitudes. Most often the position is taken that it is too late for the adult to learn. We do not believe so, and focused on the mother as learner. Our aim, of course, was to influence child development, but our strategy was to do this by changing

the mother and the way she related to her infant. In effect, we went at it the hard way. Our data on infants suggests that mothers did learn and that their infants profited even though our maternal measures do not show substantial personality change.

Results Relating to Interaction Between First and Second Objectives

Hypothesis 10 was that there would be positive correlation between the mother's expectancy of internal control measured when her baby was six months old and the developmental level of the baby at year one and year two for those receiving instruction. Our reasoning was that mothers who felt they had more control over their environments might provide the type of setting for the child which would encourage him, and might provide him with opportunities for performing in a superior fashion to those whose mothers felt they were mere victims of chance and fate. We figured that a mother who saw or felt that she made a difference would take parent education more seriously, be more likely to use what she was learning more systematically, and be more likely to encourage the child to learn. In order to use the series materials as a measure of developmental level, we simply scored the number of items that a child passed in the same way one might score any test. The varying population numbers for groups on Table 3.38 reflect the fact that we were able to test some children on the "Griffiths Mental Developmental Scale" when we were not able to secure series measures on them within the few weeks time span around the child's twelve-month birthday which we allotted for testing.

TABLE 3.38

Relationships Between Maternal Expectancy of
Internal Control and Child Performance

Group and Variable	X	SD	r
M₁ + E/C (N=48)			
6 Month SRI	10.81	3.46	
12 Month Series	11.06	4.23	-.04
M₁ (N=21)			
6 Month SRI	10.67	3.17	
12 Month Series	16.52	3.90	-.41*
M₁ Bayley (N=23)			
Mental	83.22	11.83	-.21
Motor	99.39	17.30	-.17
6 Month SRI	9.96	3.62	
M₁ + E/C (N=53)			
6 Month SRI	10.91	3.58	
General Quotient	110.94	18.26	.02
Locomotor	121.07	23.54	.01
Personal-Social	107.48	17.08	.00
Hearing & Speech	102.51	20.63	.06
Eye & Hand	112.72	18.75	.00
Performance	110.85	20.88	.07

* .05 < ~~p~~ < .10

The data on Table 3.38 indicate that generally the hypothesis must be rejected. The only correlation which approaches significance is that for the experimental group of 21 children. The correlation is in the right direction, because high scores on the SRI reflect an external belief.

Hypothesis 11 was that there would be a positive correlation between the mother's expectancy of internal control measured when her baby was six months old and the amount of verbal activity of the mother. We used the verbal interaction measure described in the earlier section of this report in relation to the family situation to assess Hypothesis 11. This hypothesis was based on a similar notion to that of Hypothesis 10. That is, we hypothesized the mother who possessed a lower (more positive) score would be more likely to interact and attempt to stimulate her baby and exert control or influence than would a mother who felt more passive about manipulating her environment. In Hypothesis 10 we did not investigate directly the relationship between maternal behavior and maternal attitude, rejected in behavior, would influence performance of the child. Here we attempted a more direct measure between maternal attitude and observed behavior. It will be recalled from our previous discussion that our measure of verbal interaction is very gross, and does not indicate the actual verbal frequency in the home, but merely scores the presence of certain types of verbal behavior at each home visit. There were 57 families on whom we had six month SRI scores on the mother and a minimum of 17 home visits in the first year. These mothers were in the original experimental groups consisting of those who stayed experimental in the second year (E₁) and those who were randomly assigned to a control condition in the second year (E/C). In spite of the crude measure of

verbal behavior, the relationship between the SRI score and the verbal means of mothers and adults as shown in Table 3.39 is in the expected direction. Hypothesis 11 is supported, although the correlations are of a low order.

TABLE 3.39

Relationships Between Mother's Expectancy of Internal Control and Observed Verbal Behavior (N=57)

Variables	X	SD	r
SRI at 6 Months	10.89	3.56	
Maternal Positive Verbal	6.39	2.50	-.24*
Maternal Negative Verbal	.56	.52	-.19
Adult Positive Verbal	8.21	2.02	-.28**
Adult Negative Verbal	.80	.67	-.21*
Total Verbal			
Attitude Index	.55	.24	-.21*

* $.05 > p > .10$
 ** $p < .05$

Observed Maternal Attitude

The SRI and How I See Myself Scales are self-reports. We were concerned as to whether we could estimate how the mother felt about the project from her behavior on home visits. We had no direct measure,

nor did we ask the mother if she used the materials with her child during the week. We used the items on Table 3.40, which appear on the Parent Educator Weekly Report (PEWR) as indicative of attitude.¹

TABLE 3.40

Items from Weekly Report for Attitude Index

Series Information

- A) How did the mothering one react to your instructions?
1. Looked at you while you were talking, and/or asked questions _____.
 2. Did other things while you were showing her how to do the exercise (examples of other things: straightened baby's clothes, looked around the room, did housework) _____.
 3. Walked out of the room while you were explaining things to her _____.
 4. Refused to do an exercise _____.
 5. Laughed at and/or scoffed at instructions _____.
 6. Other _____ What? _____.
- B) Mothering one's ability to repeat exercises:
1. Could repeat exercises the Parent Educator had explained to her _____.
 2. Could do part of the exercise by herself but needed your help _____.
 3. Couldn't repeat exercises you had explained to her _____.
- D) When the mothering one goes over last weeks' exercises with her child she:
1. Doesn't know what she's doing _____.
 2. Knows what she's doing _____.
- E) When the mothering one goes over last weeks' exercises with her child she:
1. Tries them on the child more than once if it doesn't go well the first time _____.
 2. Gets discouraged or is satisfied after doing them once even if it doesn't go well the first time _____.
 3. Does them more than once even if it goes very well the first time _____.

¹See page 63 of Appendix G for more information on development of this index.

Table 3.40 continued

F) How many interruptions were there during training that made the mothering one stop the exercise for a time? _____

None _____, 1 _____, 2 _____, 3 _____, 4 _____,
5 _____, More _____.

G) What kinds of interruptions were there?

1. Mothering one had to care for another child _____.
2. An adult wanted something _____.
3. The phone rang _____.
4. Visitors came _____.
5. The baby had to be fed _____.
6. The baby went to sleep _____.
7. Other _____.
8. None _____.

Missed Appointments and Delays

C) How many trips did you make before you got to see the mothering one for this visit? _____

D) Did the mothering one leave a message for you on any of the trips?
Yes _____ No _____

E) When you finally got to see the mothering one:

1. She said nothing about missing her appointment _____.
2. She gave a confusing explanation _____.
3. She gave an understandable explanation _____.

Items A through G on Table 3.40 were completed by the Parent Educator at the termination of a visit. We reasoned that a mother who could repeat the exercises, knew what she was doing, watched the Parent Educator demonstrate, and brooked few interruptions would be considered as displaying a positive attitude. Further, a mother who missed appointments for other than illness reasons, or seemed to be avoiding the Parent Educator would be scored as displaying a negative attitude in addition to negative behaviors observed during the home visit. The items were converted into an attitude index so that we could test this index against other observed behaviors and child performance. The index had as its

parameters a -1 score to a +1. It will be noted on Table 3.39 and on the tables in relation to Hypothesis 13 that the mother's means were over .5, indicating a generally favorable view of the project. We have added this index into the tables as an indicator of the relationship between a self-report measure of orientation and a measure developed on the basis of observation. As in the case of the verbal scores, the relationship is low but significant.

Hypothesis 12 was that there would be a positive correlation between movement of the mother in her internal-external orientation between the time she was assessed when her baby was 6 months old and 21 months old and success of the baby on series tasks at his first birthday. Our reasoning here was that if a mother saw the baby doing well, and somehow got the feeling that she was instrumental in achieving this, she might change her view to a more positive (internal) orientation. In order to test this we developed a D or change score on the SRI which was simply post minus pre so that a negative number would mean that the score had moved in an internal direction.

There were 30 families from the original experimental group on whom we had 6 and 21 month SRI scores for the mothers and 12 months series and Griffiths tests for the babies. There were no significant correlations in this group between infant performance and movement of the mother toward a more internal orientation. (See Table 3.41) In order for a correlation to have been different from zero at a probability level of .05 it would have had to be of the order of .35. None of these correlations approached this magnitude.

TABLE 3.41

**Relationships Between Mother's Change in Orientation
and Child's Performance (N=30)**

Variables	X	SD	r
SRI Change (6 mo.-21 mo.)	-.07	3.75	.
Griffiths General Quotient	113.27	9.68	.10
Locomotor	122.23	15.40	.18
Personal-Social	109.68	8.08	.03
Hearing & Speech	106.73	15.31	-.10
Eye & Hand	113.77	8.90	.07
Performance	113.59	15.07	.17
Twelve Month Series	11.03	4.05	-.17

Summary

Our data indicate that we were unable to establish any evidence of clear relationships between maternal attitude as measured by the Social Reaction Inventory and child performance measured either at the 12-month or 24-month point. To some degree, this finding corresponds with a host of studies on relationships ^{between} teacher attitude and child performance. The problem may be not only in the particular measures for both mother and child, or in the case of the classroom, teacher and child, but also because attitude can be implemented through a variety of behaviors which then may be interpreted by children in a variety of fashions. Our hypothesis was that something which might be "internal" to the mother would be translated into some action, visible and understandable to the child,

which would then be internalized by the child and reflected in a cognitive or intellectual action on a test. There are many missing links and intervening variables in testing such a notion. Although it may be sound from a general child development theory point of view, we were obviously not able to demonstrate it with the type of information available to us. We were able to show that there is a small but positive relationship between the mother's attitude and her observed behavior on a crude measure of verbal activity. Hypothesis 14 will explore whether that measure of verbal activity observable by the child is reflected in his performance.

Additional Hypotheses

Since one of our objectives was to collect information on the homes, the logical derivative was to see whether differences in home conditions within the disadvantaged population with whom we were working might contribute to differential performance within the experimental group. Hypotheses 13, 14 and 17 deal with that type of question. In order to test hypothesis 13, that situation variables such as density and crowding, multiple mothering, number of children, marital situation, mother's education and age, disruption during parent education visits, and mother's sex role expectation for the child would not be critical, we had to adopt several procedures and develop a variety of indices.

The first home variable examined was that of density and crowding. In the earlier section on results relating to family factors we presented the overall data on density. To test this sub-hypothesis we correlated the density score with the Griffiths Scales at age one for the experimental groups of both years (E_1 and E/C and C_3). Table 3.42 presents the data which indicate that for some reason density contributed to variance within the group for the second experimental group, but did not do so for the first. The amount of density in the two groups is not significantly different, nor are the Griffiths Scale scores. There is only one significant relationship between density and second year child performance variables and this for a very small group of four control youngsters on whom we had both sets of information. (Table 3.43)

Generally, with the one noted exception, the hypothesis that there will be no difference in child performance as a function of density and crowding is sustained.

TABLE 3.42

Relationships Between Child Performance on the
 "Griffiths Mental Development Scale" and
 Density of Home Conditions

Groups and Variables	X	SD	r to Density
<hr/>			
E ₁ + E/C (N=61)			
Density	1.20	.63	
General Quotient	112.31	10.27	
Locomotor	123.06	18.18	-.15
Personal-Social	109.31	9.41	-.13
Hearing & Speech	102.97	14.66	-.11
Eye & Hand	113.82	11.02	-.15
Performance	112.33	14.18	.03
<hr/>			
E ₂ + C ₃ (N=26)			
Density	1.42	.65	
General Quotient	108.46	3.59	-.51*
Locomotor	118.82	18.88	-.37 ^A
Personal-Social	109.94	7.46	-.42*
Hearing & Speech	97.90	13.42	-.51*
Eye & Hand	110.82	10.49	-.09
Performance	103.78	12.00	-.37 ^A

^A $\phi < .10$

* $\phi < .05$

TABLE 3.43

Relationships Between Child Performance
at 2 Years of Age and Density of
Home Conditions

Groups and Variables	X	SD	r to Density
E₁ (N=23)			
Density	1.15	.63	
Bayley Mental	89.96	11.24	.22
Motor	100.87	16.43	.15
Task Orientation	23.61	9.27	.23
24 Month Series	17.43	4.51	.00
E/C (N=24)			
Density	1.22	.57	
Bayley Mental	79.83	12.02	.07
Motor	95.25	26.53	.11
Task Orientation	23.33	7.45	-.07
24 Month Series	15.58	4.53	-.04
C/E (N=14)			
Density	1.11	.65	
Bayley Mental	88.21	10.48	.19
Motor	97.14	31.98	.40
Task Orientation	26.93	3.37	.28
24 Month Series	18.13	5.45	.41
C/C (N=4)			
Density	1.73	.46	
Bayley Mental	77.50	3.28	.60
Motor	74.25	43.15	-.95*
Task Orientation	24.25	4.26	-.82

* $p < .05$

Table 3.44 presents the information on marital situation and Griffiths Scale scores. Although there are significant differences in the ($E_1 + E/C$) group, (the original experimental group) and none for the $E_2 + C_3$ group (the second experimental), the overall picture suggests that the children of single mothers generally scored lower than the children of married mothers or of mothers who had once been married. There are a total of 36 scores across the three groups. The children of single mothers do poorest on 33 of the 36 scores. The three comparisons where this is not true are all in the $E_2 + C_3$ group and are in the Eye-Hand and Locomotor variables. The data on marital status and performance on the Series at 12 months (Table 3.45) tends to support the trend found on the Griffiths Scales. The children of single mothers perform less well on five of the six possible comparisons. In general, the hypothesis that there will be no differences because of marital situation is not supported. The children of mothers who are married or who were married seem to have a slight edge on those whose mothers who were never married.

When we examine the data on Bayley Scale performance in relation to marital status, (Table 3.46) the picture is not clear. Generally, in the E_1 group the children of single mothers are best, as are the children of single mothers in the C/E group on the motor scale and task orientation, while in the E/C group the children of married mothers do better than the other two groups of children. The 24 month series data resemble the 12 month data. That is, on five of the six comparisons, the children of single mothers perform poorest (See Table 3.45). In relation to the second year, the hypothesis is partially supported

TABLE 3.44

Relationships Between Marital Status of Mother
and Child Performance on the "Griffiths
Mental Development Scale"

Group	Status					
	Married (N=36)		Single (N=24)		Other (N=9)	
	X	SD	X	SD	X	SD
E₁ + E/C (N=69)						
Griffiths General Quotient	114.31	10.87	107.04 ^A	9.00	115.22	8.93
Locomotor	128.54	18.54	112.36 ^B	14.05	125.51	14.17
Personal-Social	110.17	9.85	106.84	8.77	110.39	8.73
Hearing & Speech	104.86	14.63	95.00 ^A	14.13	111.90	17.29
Eye & Hand	115.45	12.00	110.88	10.18	114.91	7.94
Performance	112.56	13.57	109.73	15.46	113.35	17.19
C/E + C/C (N=35)						
	(N=22)		(N=9)		(N=4)	
General Quotient	110.00	8.95	101.89 ^B	8.75	106.50	11.59
Locomotor	120.95	17.01	113.16	19.95	125.59	8.40
Personal-Social	107.83	10.46	104.47	7.59	105.62	7.80
Hearing & Speech	98.65	13.73	86.89	17.96	96.78	2.26
Eye & Hand	111.50	9.89	105.46	11.09	110.75	13.50
Performance	110.01	14.17	100.17	12.68	111.16	10.41
E₂ + C₃ (N=36)						
	(N=20)		(N=8)		(N=8)	
General Quotient	109.50	10.36	107.25	9.78	110.75	8.21
Locomotor	118.58	21.91	118.66	17.78	122.10	16.83
Personal-Social	108.98	7.20	107.00	11.60	111.89	9.78
Hearing & Speech	101.08	15.36	93.26	13.93	98.27	18.44
Eye & Hand	112.27	14.11	112.42	14.06	112.26	9.75
Performance	106.57	14.46	103.36	9.01	108.26	11.55

^A Lower than married and other, $p < .05$

^B Lower than married, $p < .05$

Table 3.45

**Child Performance on Series Tests as a Function
of Maternal Marital Status**

Group		12 Month Series								
		Married			Single			Other		
		N	X	SD	N	X	SD	N	X	SD
E ₁	E/C	30	11.70	3.93	23	10.69	4.57	8	10.50	4.84
C/C	C/E	19	9.74	3.87	11	8.00	2.93	4	13.75	6.13
E ₂	C ₃	19	11.37	4.73	6	6.67	3.72	8	11.37	2.77

		24 Month Series								
E ₁		14	17.79	4.89	8	16.25	3.69	3	20.67	4.93
E/C		13	14.77	4.49	10	15.90	4.68	5	18.00	4.06
C/E		9	18.22	5.47	4	16.25	5.19	3	21.33	6.65
C/C		4	11.50	2.38	2	11.00	7.07	1	18.00	.00

that marital status does not influence child performance as measured by the Bayley scales, but does influence series performance.

When age, number of years of schooling, and number of children are examined, (See Table 3.47 and 3.48) rarely is there a significant relationship between any one of these three variables and either Griffiths Scales or 12 month series performance. The only significant relationships exist among these three variables themselves: the younger the mother, the more years of schooling, and the older the mother, as one would expect, the

TABLE 3.4C

Relationships Between Marital Status of
Mother and Child Performance on the
Bayley Scales

Group	Status					
	Married (N=14)		Single (N=8)		Other (N=3)	
	X	SD	X	SD	X	SD
E₁ (N=25)						
Mental	82.50	10.77	89.75	13.31	86.67	1.53
Motor	97.14	19.58	104.12	8.53	113.00	5.00
Task Orientation	23.92	6.45	28.14	5.27	27.00	1.73
E/C (N=27)	(N=14)		(N=10)		(N=4)	
Mental	83.50	14.24	72.20	8.29	78.25	8.69
Motor	105.71	16.57	87.11	17.41	97.00	5.48
Task Orientation	26.64	5.23	20.78	4.60	23.25	4.65
C/E (N=15)	(N=15)		(N=3)		(N=3)	
Mental	89.78	8.30	82.67	15.30	92.33	14.98
Motor	107.44	20.78	109.00	18.38	96.33	8.14
Task Orientation	26.44	3.36	29.33	5.13	27.00	1.73

TABLE 3.47

Means and Standard Deviations, Maternal Variables
and Child Performance Variables at Age One

Variables	E ₁ + E/C (N=49)		C/E (N=23)		C/C (N=24)		E ₂ + C ₃ (N=10)	
	X	SD	X	SD	X	SD	X	SD
Age	25.90	8.41	25.70	10.73	26.62	9.12	22.70	3.61
Years of Education	10.45	1.57	10.00	2.06	10.33	1.84	10.40	1.96
No. of Children	3.25	2.09	2.95	2.25	5.17	5.37	2.50	1.75
General Quotient	111.33	10.55	107.48	10.36	107.63	10.50	111.20	8.47
Locomotor	121.98	17.14	118.18	18.00	119.68	16.78	123.72	20.91
Personal-Social	109.12	9.88	107.06	10.16	104.75	10.09	111.71	8.68
Hearing & Speech	101.44	15.22	95.44	15.57	95.34	16.41	97.53	12.92
Eye & Hand	113.19	11.08	109.87	9.82	107.65	10.63	109.52	10.13
Performance	110.35	13.77	107.77	12.24	110.48	13.33	111.10	11.38
12 Month Series	10.93	4.07	10.89	4.56*	10.50	3.93	13.20	3.52

* On smaller N of 19

TABLE 3.48

Relationships Between Mother's Age, Years of Schooling,
Number of Children and Child Performance

Groups & Variables	Variables									
	Age 1	Education 2	Children 3	General Quotient 4	Locomotor 5	Personal- Social 6	Hearing & Speech 7	Eye & Hand mance 8	Perfor- mance 9	12 Month Series 10
E₁ + E/C (N=49)										
1. Age		-32*	43*	12	07	00	12	04	24	00
2. Education			-21	00	12	08	-11	00	11	05
3. No. of Children				19	17	07	09	11	25	-13
C/E (N=23)										
1. Age		-60*	32	00	14	-05	23	23	36	24 ¹
2. Education			-51*	10	05	19	-13	-20	-24	-08
3. No. of Children				14	-14	-01	41*	13	16	-09
C/C (N=24)										
1. Age		-57*	-02	-20	-29	-17	-19	-21	06	11 ²
2. Education			-25	36	45*	32	31	22	08	-52
3. No. of Children				17	02	20	-14	42*	28	01
E₂ + C₃ (N=10)										
1. Age		-38	55	-04	11	-20	-21	-10	22	56
2. Education			-23	-20	-06	21	-11	-32	-33	-05
3. No. of Children				-57	-46	-36	-25	-49	-34	-03

¹ On smaller N of 19, intercorrelations of maternal variables are virtually identical.

² On smaller N of 10.

more children she has. The cycle is completed in that the more children the mother has, the less years of schooling she has had. The pattern is the same on the 24 month data. The sub-hypothesis is thus sustained.

Number of children, age of mother, and number of years of mother's formal education do not contribute to child differences in performance at either age one or age two within any treatment group.

In discussing question eight, we noted that Dr. McCaulley's EME scale indicated no major differences in expectations for ideal male and female infants related to the age of the mother's child, the race of the mother or her parity. We made a decision that the discrepancy between the way the mother rated her child and her definition of the ideal child would be used as a measure of socialization. That is, if the mother felt she was accomplishing her ends, then she might see her child as more closely resembling the ideal. If there was a wide discrepancy between her view of the ideal and her view of her own infant, this might be taken as an indicator that she was still hard at work socializing the child to get the infant to conform to maternal expectation. Admittedly this is an arbitrary operational definition. Based on it, we were able to divide the girls into two categories - those whose mothers saw a close resemblance between ideal and her girl and those whose mothers saw little resemblance. We were able to divide the boys into three groups: most, middle and least. We then raised the question whether the discrepancy between ideal and "real" in the mother's eyes would be related to child performance. Table 3.49 presents the information. The only significant difference is that boys in the middle group score lower than their peers on Hearing-Speech. However, for five of the six scores, the girls who least resemble their mother's ideal out-score the

girls who most resemble. However, for the boys, those who most resemble their mother's ideal outscore the least on all scales. Since the size of the groups are extremely small, the above statement should not be assigned much generalizing power. Nevertheless, it seems to be in keeping with the Kagan and Moss position on differential socialization and its effects on achievement. In general, situational and maternal variables except for marital situation and sex-role expectation did not seem to affect child performance within the group (Table 3.49).

We turn now from demographic information to observed behavior and situations on home visits. In order to check on multiple mothering and disruption, we developed indices from the PEWR data. (See pages 68 and 69 of Appendix G) We have already described the attitude and verbal interaction measures. Table 3.50 and 3.51 present the data on first year child performance in relation to multiple mothering, disruption, total number of home visits, number of visits with the mother, and verbal interaction. These tables provide the information for hypotheses 13, 14 and 16. In respect to hypothesis 13, across the three first year groups, the data sustain the hypothesis. Multiple mothering and disruption do not seem to influence test performance on the Griffiths Scales within these three treatment groups. The only significant correlations are for the E₂ group in which multiple mothering is negatively related to locomotor score and disruption negatively related to Hearing-Speech. In the case of children on whom we had two year performance on the Bayley Scales, (See Table 3.52 and 3.53) there are no significant correlations between multiple mothering or disruption and Bayley Scale performance. The sub-hypothesis is thus sustained.

TABLE 3.49
Means and Standard Deviations on the "Griffiths Mental Development Scale"
for Children Who Resemble Maternal Sex-Role Expectations

Variables	Groups									
	Girls					Boys				
	Most (N=6)		Least (N=5)		Most (N=7)	Middle (N=11)		Least (N=8)		
	X	SD	X	SD		X	SD	X	SD	
General Quotient	106.67	7.66	113.60	9.15	115.29	111.71	106.82	10.05	111.16	6.88
Locomotor	112.78	10.11	121.49	12.19	123.43	18.12	117.95	22.61	115.92	10.63
Personal-Social	106.17	6.49	109.54	12.40	112.31	8.96	106.12	11.40	109.87	5.15
Hearing & Speech	95.28	16.19	102.99	13.74	110.81	12.79	89.76*	16.11	109.98	19.43
Eye & Hand	113.98	7.90	112.38	5.15	119.41	9.90	111.74	10.02	111.58	8.28
Performance	104.23	15.30	120.03	12.12	109.58	16.31	108.49	13.46	108.97	17.74

* Lower than both other boy groups, $p < .05$

TABLE 3.50

Means and Standard Deviations on PEWR Variables
and Child Performance at Age One

Variables	Groups					
	E ₁ + E/C (N=75)		E ₂ (N=15)		C ₃ (N=19)	
	X	SD	X	SD	X	SD
1. No. home visits	25.97	5.42	26.13	6.00	23.79	5.51
2. No. mother visits	20.96	7.96	20.47	8.84	19.68	6.70
3. Multiple mothering index	.11	.11	.08	.08	.16	.12
4. Disruption index	.29	.48	.24	.29	.36	.48
5. Mat. pos. verbal	6.44	2.42	7.23	2.49	8.60	2.35
6. Mat. neg. verbal	.57	.54	.67	.63	.60	.36
7. Attitude index	.56	.23	.66	.27	.71	.26
8. Adult pos. verbal	8.13	2.23	9.74	2.17	11.44	1.99
9. Adult neg. verbal	.80	.68	1.10	.79	1.01	.64
10. Total verbal	8.95	2.77	10.86	2.57	12.47	2.12
11. Griffiths General Quotient	111.51	10.44	109.80	8.19	110.53	9.41
12. Locomotor	121.96	18.13	115.31	17.50	124.82	19.05
13. Personal-Social	108.66	9.21	108.55	5.33	111.68	8.67
14. Hearing & Speech	101.76	15.41	101.70	10.63	98.30	17.61
15. Eye & Hand	113.50	10.89	113.38	12.77	113.20	11.42
16. Performance	111.50	14.17	109.04	12.80	104.61	12.32

TABLE 3. 51

Significant Correlations, PEWR Variables and the
"Griffiths Mental Development Scale" Score

Group & Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Home visits															
A. E+E/C (N=75)	65		22			27	25		24						
B. E ₂ (N=15)	45		53												
C. C ₃ (N=19)															
2. Mother visits															
A		-54		60		74									
B		-49	49	80		74									
C		-57	45	63		45	51		55						
3. Mult mother index															
A				-40		-54									
B				-47		-52									
C				-62		-50									
4. Disruption															
A					26		32	42	42	36					
B													-56		
C									52						
5. Mat. pos. verb.															
A					61	68	70	43	67						
B						86		50	49						
C						74	59		53				55		
6. Mat. neg. verb.															
A						29	68	91	77						
B								82							
C									65						
7. Attitude index															
A							24		22						
B															
C							46		45				49		
8. Adult pos. verb.															
A								72	99	25			23		
B									96						
C									95						
9. Adult neg. verb.															
A									83						
B									63						
C															
10. Total verb.															
A										25			22		
B															
C															

N = 75, $r = .22$, $p < .05$

N = 15, $r = .51$, $p < .05$

N = 19, $r = .45$, $p < .05$

TABLE 3.52

Means and Standard Deviations, PEWR Variables
in Second Year and Bayley Scores

Variable	Groups			
	C/E (N=15)		E (N=31)	
	X	SD	X	SD
1. Home visits	36.60	6.02	34.87	6.34
2. Mother visits	21.87	14.05	27.00	11.16
3. Mult. mothering index	.12	.09	.11	.14
4. Disruption index	.48	.36	.51	.55
5. Mat. pos. verb.	5.85	3.33	7.21	2.80
6. Mat. neg. verb.	.72	.68	.86	.61
7. Attitude index	.42	.33	.55	.29
8. Adult pos. verb.	11.98	2.28	10.25	1.93
9. Adult neg. verb.	1.61	.90	1.38	.77
10. Total verb.	13.59	2.38	11.63	2.35
11. Bayley mental	88.87	10.42	83.61	11.61
12. Motor	98.27	31.18	101.13	16.76
13. Task Orientation	27.13	3.34	23.29	8.10

Table 3.53

Significant Correlations, Second Year PEWR
Variables and Bayley Scores

Variables and Group		2	3	4	5	6	7	8	9	10	11	12	13
1. No. of home visits	E (N=31) C/E (N=15)	37 53							37				
2. Mother visits	E C/E		-67		71 93	60 68	71 63						
3. Multiple mothering	E C/E				-55		-39						
4. Disruption	E C/E							48 74		50 80			
5. Maternal verbal positive	E C/E					54 51	72 76						
6. Maternal verbal negative	E C/E						52		79 63	40			
7. Attitude	E C/E												
8. Adult verbal positive	E C/E								40	95 93			
9. Adult verbal negative	E C/E									67	52		53
10. Total verbal	E C/E										64		
11. Mental	E C/E												
12. Motor	E C/E												
13. Task oriented	E C/E												

$N=31, r=.34, p < .05$

$N=15, r=.51, p < .05$

Hypothesis 14 was that children in homes with higher levels of verbal interaction would be more advanced developmentally within treatment groups over those in homes with lower levels of verbal interaction. Table 3.51 presents the information on the first year, and Table 3.52 on the second year. The total amount of verbal interaction and the amount of positive adult verbal interaction contribute to Griffiths Scale performance for the original experimental group, but not for either the new series group (E_2) or the new other curriculum group (C_3). This may be a function of size of population. The degree of relationship is small, contributing little to the variance of within-group performance. Nevertheless, if we recall that our measure is a crude one, the relationships which we find suggest that with a better measure of verbal interaction in the home we might more clearly substantiate this hypothesis. As it stands, the findings are mixed and all we can say is that there is some indication favoring non-rejection of the hypothesis.

The second-year data show that for the group who joined the project as experimental in the second year, there are clear-cut relationships between performance on the Mental scale of the Bayley scale and total adult positive verbal behavior and total verbal behavior. When both groups are combined, the correlation coefficient between total verbal behavior and mental scores of the Bayley is .24, significant at $p < .10$. In our discussion of the Social Reaction Inventory data (hypotheses 10 and 11) we indicated low positive relationships between an SRI internal orientation and amount of verbal interaction in the home, although there was no significant relationship between SRI scores and child performance. Here we have a slight relationship between verbal interaction and child per-

formance. Verbal interaction seems to be a possible link, although a very tenuous one with our measures, between a maternal attitude toward control over one's circumstances and child performance.

The general pattern of interactions among the observed variables in both the first and second years are what one might expect, that is, there are high relationships among the verbal measures, and highly verbal mothers are seen as possessing positive attitudes toward the project. The correlations between disruption and adult verbal behavior would suggest that part of the disruption pattern is conversation with other adults. Although this has been called "disruption," it seems to act to increase the general language flow in the home, and it is the general language flow which relates to child performance. In the case of the E_2^{group} for example, where there is no significant relationship between disruption and the verbal measures, disruption is negatively related to Hearing and Speech performance.

Obviously, the total climate of the home, both in its verbal and its other aspects, has not been observed and recorded for analysis in this project. These Parent Educator Weekly Reports were completed at the home visit by a paraprofessional who was busy during the home visit attempting to teach the mother. We would suggest that more careful analysis of home visit variables would lead to a pattern of variables related to child performance even within a population supposedly somewhat homogeneous. The means and standard deviations indicate there is wide variation even within this group in the verbal flow in the home, the use of mother substitutes, the amount and type of interruptions during parent education sessions. It would be an error to overlook the tremendous

range of individual differences in home life situations within this population.

Hypothesis 16: We will discuss hypothesis 16 (relationships of number of home visits to development of mother and child) before hypothesis 15 because the data for 16 are contained on the same set of tables which we have just been examining. There are no significant differences in child performance which can be attributed to either the number of home visits made, or to the number of home visits made in which the mother was the recipient of parent education. Hypothesis 16 must be rejected in respect to child performance as a function of number of completed visits.

Hypothesis 16 applied to mothers as well as children. We therefore correlated change scores on HISM and the SRI with total number of visits and number of visits with the mother. Table 3.54 presents the data. It will be noted that change on the four HISM variables was insignificant from pre to post and further, that what little change existed did not correlate significantly with either the home visits or the number of visits to the mother. The movement of the SRI to a more internal orientation (See hypothesis 6) was unrelated to the number of home visits.

Hypothesis 15 was that girls would be more advanced than boys within treatment groups. Here we were simply taking the best guess we could from the general child development literature. Table 3.54, which presents means and standard deviations on Griffiths Scale performance for all groups, and Table 3.55, which presents Bayley Scale data contain no support for this hypothesis. Although there are no differences on scores within groups on the Griffiths Scales, Lally (1969) found that there was a significant interaction effect on the Locomotor Scale. Control boys outperformed

TABLE 3.54

Means, Standard Deviations, and Correlations,
Maternal Variables and Home Visits
(N=24; E₂ + C₃)

		\bar{X}	SD	Home Visits r	Visits With Mother r
HISM:	Autonomy	- .46	4.40	.13	.39
	Interpersonal Adequacy	- .42	9.55	.28	.34
	Physical Appearance	.67	5.37	.11	.25
	Teacher- School	.71	4.70	.23	-.16
SRI		- 1.42	3.44	.14	.06
	Number Home Visits	25.79	6.31		
	Number Visits with Mother	20.42	8.40		

TABLE 3.55

Means and Standard Deviations on the Bayley Scales
by Sex and Treatment Group

Group	Experimental both years (E ₁)			
	Male (N=11)		Female (N=14)	
	X	SD	X	SD
Mental	79.63	9.31	98.79	10.14
Motor	95.73	18.87	105.64	11.13
Task Orientation	24.00	5.34	23.21	10.89
	Experimental first year only (E/C)			
	Male (N=18)		Female (N=13)	
	X	SD	X	SD
Mental	79.50	13.21	81.15	13.69
Motor	91.44	27.02	103.38	17.82
Task Orientation	23.61	7.10	23.54	6.06
	Experimental second year (C/E)			
	Male (N=8)		Female (N=7)	
	X	SD	X	SD
Mental	92.5	7.75	84.71	11.47
Motor	104.63	14.84	91.00	41.62
Task Orientation	27.25	4.35	27.00	1.51
	Control (C/C)			
	Male (N=9)		Female (N=17)	
	X	SD	X	SD
Mental	82.00	7.80	87.46	15.95
Motor	104.33	13.10	101.76	29.80
Task Orientation	25.00	3.27	25.82	4.25

experimental boys, and experimental girls not only were significantly better than the control girls, but also these were superior to the experimental boys. When series scores are used as a criteria, girls are not more developmentally advanced within the treatment groups than are boys. Tables 3.56 - 3.63 present the series data. The hypothesis was not confirmed.

Hypothesis 17 was that children who were reported more often as ill would make less progress than those least reported ill. See Table 3.64 for illness means and standard deviations. Table 3.65 presents the correlations between Griffiths Scale means, Bayley Scale means and the illness means for the three groups on which we had all these measures. Hypothesis 17 must be rejected. On the measures we had, we could determine no relationship between illness and test performance.

Summary

In general, there is no clear-cut pattern of relationship between demographic and observed home visit variables with the test performance of infants. There is some slight tendency for amount of verbal interaction to influence Griffiths Hearing-Speech scores and Bayley mental scores; there are some indications that the married or formerly married mother provides something that influences child performance at age one, but is not consistent for the experimental group at age two; the gap between the mother's sex role expectation for an ideal boy or girl and her view of her own child, as measured by the EME, relates differently to child performance for boys and girls. Beyond these few indicators, we have not been able to determine from our data what maternal and home factors, if any, within experimental groups contribute to the variance of child performance at age one and age two.

TABLE 3.56

Means and Standard Deviations on the "Griffiths Mental Development Scale" by Sex and Treatment Group

Group	$E_1 + E/C$				$C/E + C/C$			
	Male (N=42)		Female (N=33)		Male (N=25)		Female (N=36)	
	X	SD	X	SD	X	SD	X	SD
General Quotient	110.50	10.73	112.79	9.90	108.16	9.39	106.25	10.65
Locomotor	119.96	18.19	124.51	17.72	121.20	18.33	116.61	16.41
Personal-Social	107.59	10.07	110.03	7.75	106.80	10.44	103.96	9.25
Hearing & Speech	101.12	17.57	102.57	12.05	95.79	11.36	95.51	17.37
Eye & Hand	113.45	11.03	113.57	10.71	110.91	9.95	105.66	10.51
Performance	110.28	13.39	113.05	14.95	107.50	14.17	109.90	14.34

Group	$E_2 + C_3$				C_4			
	Male (N=17)		Female (N=17)		Male (N=11)		Female (N=12)	
	X	SD	X	SD	X	SD	X	SD
General Quotient	110.23	10.11	110.18	7.49	109.45	8.99	105.83	4.27
Locomotor	112.74	20.61	118.51	16.92	128.72	17.18	113.61	13.37
Personal-Social	110.02	8.48	110.58	6.47	106.49	12.23	104.81	4.89
Hearing & Speech	102.06	15.74	97.54	13.93	89.36	9.96	90.36	3.84
Eye & Hand	111.94	12.66	114.62	11.22	112.34	8.57	110.86	10.16
Performance	105.31	14.51	107.83	10.49	109.50	11.48	108.71	7.02

TABLE 3.57

Proportions of Successes, 12 Months Series,
Original Experimental Group

		Females (N=36)			Males (N=45)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	35	9	.26	45	14	.31
	2	35	28	.80	45	38	.84
	3	29	24	.83	31	26	.84
	4	35	28	.80	43	35	.81
	5	35	18	.51	42	25	.60
	6	29	11	.38	31	11	.35
Series V	1	36	27	.75	45	30	.67
	2	36	24	.67	45	31	.69
	3	32	10	.31	43	12	.28
	4	36	28	.78	45	27	.60
	5	36	7	.19	42	20	.48
	6	36	12	.33	44	11	.25
	7	36	20	.56	45	23	.51
	8	36	7	.19	44	13	.30
Series VI	1	36	4	.11	44	2	.05
	2	36	0	.00	44	1	.02
	3	35	8	.23	39	10	.26
	4	36	8	.22	44	7	.16
	5	34	11	.32	44	14	.32
	6	36	15	.42	44	18	.41
	7	35	16	.46	43	19	.44
	8	34	8	.24	38	5	.13
Series VII	1	34	10	.29	41	15	.37
	2	34	3	.09	42	8	.19
	3	35	5	.14	42	4	.10
	4	33	0	.00	40	3	.08
	5	34	1	.03	43	1	.02
	6	30	0	.00	41	0	.00
	7	34	5	.15	41	5	.12
	8	33	22	.67	42	31	.74
Series VIII	1	34	1	.03	41	0	.00
	2	33	5	.15	41	11	.27
	3	33	0	.00	41	0	.00
	4	34	0	.00	41	1	.02
	5	30	0	.00	34	0	.00
	6	30	0	.00	36	0	.00
	7	33	8	.24	40	9	.23
	8	27	3	.11	35	4	.11

TABLE 2.53

Proportions of Successes on 12 Months Series, .2 Group

		Females (N=9)			Males (N=6)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	9	3	.33	6	2	.33
	2	9	6	.67	6	6	1.00
	3	9	6	.67	6	4	.67
	4	9	3	.89	6	6	1.00
	5	9	5	.56	6	6	1.00
	6	9	2	.22	6	2	.33
Series V	1	9	8	.89	6	4	.67
	2	9	4	.44	6	4	.67
	3	7	0	.00	6	2	.33
	4	9	6	.67	6	4	.67
	5	9	0	.00	6	2	.33
	6	9	3	.33	6	2	.33
	7	9	4	.44	6	1	.17
	8	9	3	.33	6	1	.17
Series VI	1	9	0	.00	6	0	.00
	2	9	0	.00	6	0	.00
	3	9	4	.44	6	2	.33
	4	9	1	.11	6	0	.00
	5	8	0	.00	6	0	.00
	6	9	3	.33	6	1	.17
	7	9	4	.44	6	4	.67
	8	9	3	.33	6	1	.17
Series VII	1	7	1	.14	6	2	.33
	2	8	1	.13	6	1	.17
	3	8	0	.00	6	0	.00
	4	8	0	.00	6	1	.17
	5	8	0	.00	6	0	.00
	6	8	0	.00	6	0	.00
	7	8	0	.00	6	0	.00
	8	8	5	.63	6	3	.50
Series VIII	1	8	1	.13	6	0	.00
	2	7	0	.00	6	1	.17
	3	8	0	.00	6	0	.00
	4	8	0	.00	6	1	.17
	5	5	0	.00	5	0	.00
	6	6	0	.00	5	0	.00
	7	2	2	.25	6	0	.00
	8	3	0	.00	6	1	.17

TABLE 3.59

Proportions of Successes on 12 Months Series, C₂ Group

		Males (N=10)			Females (N=8)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	10	4	.40	8	1	.13
	2	10	8	.80	8	6	.75
	3	10	8	.80	8	5	.63
	4	10	10	1.00	8	6	.75
	5	8	7	.88	8	3	.38
	6	10	1	.10	8	1	.13
Series V	1	10	7	.70	8	6	.75
	2	10	8	.80	8	7	.88
	3	8	0	.00	8	0	.00
	4	10	5	.50	8	5	.63
	5	10	6	.60	7	1	.14
	6	10	4	.40	8	3	.38
	7	10	3	.30	8	5	.63
	8	10	1	.10	8	2	.25
Series VI	1	10	0	.00	8	0	.00
	2	10	0	.00	8	0	.00
	3	10	3	.30	8	4	.50
	4	10	2	.20	8	2	.25
	5	10	3	.30	8	5	.63
	6	10	4	.40	8	4	.50
	7	10	5	.50	8	3	.38
	8	9	2	.22	7	3	.43
Series VII	1	10	5	.50	7	2	.29
	2	10	2	.20	8	1	.13
	3	10	4	.40	8	1	.13
	4	10	1	.10	8	0	.00
	5	10	0	.00	8	0	.00
	6	9	0	.00	7	0	.00
	7	10	0	.00	8	1	.13
	8	9	5	.56	8	6	.75

TABLE 7.60

Proportions of Successes, 12 Months Series,
Original Control Group

		Females (N=37)			Males (N=32)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series IV	1	37	5	.14	32	5	.16
	2	37	32	.86	32	24	.75
	3	33	29	.88	28	21	.75
	4	36	25	.69	32	20	.63
	5	37	17	.46	31	17	.55
	6	33	13	.39	28	9	.32
Series V	1	37	24	.65	32	23	.72
	2	35	28	.80	32	20	.63
	3	36	6	.17	29	5	.17
	4	37	20	.54	32	19	.59
	5	36	9	.25	31	5	.16
	6	37	17	.46	32	11	.34
	7	37	21	.57	32	22	.69
	8	36	6	.17	32	5	.16
Series VI	1	37	1	.03	32	1	.03
	2	37	1	.03	32	0	.00
	3	37	15	.41	32	17	.53
	4	36	4	.11	31	4	.13
	5	36	14	.39	32	7	.22
	6	37	16	.43	32	11	.34
	7	36	11	.31	30	10	.33
	8	34	3	.09	29	3	.10
Series VII	1	34	6	.18	31	2	.06
	2	36	6	.17	32	5	.16
	3	36	5	.14	32	5	.16
	4	34	1	.03	30	0	.00
	5	36	1	.03	32	1	.03
	6	34	1	.03	31	0	.00
	7	35	2	.06	31	1	.03
	8	35	22	.63	30	17	.57
Series VIII	1	32	2	.06	31	0	.00
	2	33	6	.18	31	0	.00
	3	31	0	.00	29	0	.00
	4	34	0	.00	31	0	.00
	5	26	0	.00	23	0	.00
	6	28	0	.00	28	0	.00
	7	34	11	.32	31	6	.19
	8	29	1	.03	24	0	.00

TABLE 3.61

Proportions of Successes, 24 Months Series,
Two Year Experimental Children

		Males (N=11)			Females (N=13)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	11	6	.55	13	5	.38
	2	11	5	.45	13	6	.46
	3	11	10	.91	13	7	.54
	4	10	7	.70	13	10	.77
	5	10	7	.70	13	12	.92
	6	11	11	1.00	13	12	.92
	7	11	4	.36	13	6	.46
	8	10	10	1.00	13	13	1.00
Series VII	1	10	5	.50	13	3	.23
	2	11	4	.36	13	11	.85
	3	11	3	.27	13	4	.31
	4	11	5	.45	13	5	.38
	5	11	3	.27	13	3	.23
	6	11	3	.27	13	1	.08
	7	10	4	.40	13	5	.38
	8	10	9	.90	13	12	.92
Series VIII	1	11	2	.18	13	5	.38
	2	10	7	.70	13	8	.62
	3	10	2	.20	13	1	.08
	4	11	3	.27	13	1	.08
	5	9	0	.00	11	1	.09
	6	9	0	.00	12	0	.00
	7	11	10	.91	13	13	1.00
	8	10	2	.20	13	6	.46

TABLE C.62

Proportions of Successes, 24 Months Series, L/C Group

		Females (N=15)			Males (N=17)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	15	6	.40	17	6	.35
	2	15	5	.33	17	3	.18
	3	15	10	.67	17	12	.71
	4	15	14	.93	17	14	.82
	5	15	12	.80	17	11	.65
	6	15	15	1.00	17	12	.71
	7	15	8	.53	17	5	.29
	8	15	15	1.00	16	11	.69
Series VII	1	15	2	.13	17	4	.24
	2	15	10	.67	17	7	.41
	3	15	3	.20	17	5	.29
	4	15	7	.47	17	5	.29
	5	15	1	.07	17	4	.24
	6	15	0	.00	17	0	.00
	7	14	2	.14	17	3	.18
	8	15	14	.93	17	14	.82
Series VIII	1	15	3	.20	17	2	.12
	2	15	12	.80	17	10	.59
	3	14	0	.00	17	2	.12
	4	15	0	.00	17	1	.06
	5	14	0	.00	15	0	.00
	6	14	0	.00	17	2	.12
	7	15	13	.87	17	16	.94
	8	13	5	.38	17	3	.18

TABLE 3.63

Proportions of Successes, 24 Months Series, C/E Group

		Males (N=9)			Females (N=8)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	9	2	.22	8	3	.38
	2	9	3	.33	8	3	.38
	3	9	6	.67	8	7	.88
	4	9	8	.89	8	7	.88
	5	9	7	.78	8	6	.75
	6	9	8	.89	8	8	1.00
	7	9	5	.56	8	4	.50
	8	9	9	1.00	8	8	1.00
Series VII	1	9	3	.33	8	5	.63
	2	9	5	.56	8	6	.75
	3	9	2	.22	8	4	.50
	4	9	5	.56	8	4	.50
	5	9	1	.11	8	3	.38
	6	9	2	.22	8	2	.25
	7	9	4	.44	8	3	.38
	8	9	7	.78	8	7	.88
Series VIII	1	9	4	.44	8	3	.38
	2	9	6	.67	8	7	.88
	3	9	1	.11	7	0	.00
	4	9	0	.00	8	2	.25
	5	8	0	.00	7	0	.00
	6	9	0	.00	8	0	.00
	7	9	8	.89	8	8	1.00
	8	9	3	.33	8	5	.63

TABLE 3.64

Proportions of Successes, 24 Months Series, Control Group

		Males (N=10)			Females (N=17)		
		n ₁	n ₂	P	n ₁	n ₂	P
Series VI	1	10	4	.40	17	4	.24
	2	10	3	.30	17	7	.41
	3	10	10	1.00	17	13	.76
	4	10	6	.60	17	15	.88
	5	10	6	.60	16	11	.69
	6	10	9	.90	17	14	.82
	7	10	4	.40	17	11	.65
	8	9	8	.89	16	13	.81
Series VII	1	10	2	.20	17	6	.35
	2	10	6	.60	17	9	.53
	3	10	4	.40	17	4	.24
	4	10	3	.30	16	3	.19
	5	10	1	.10	17	1	.06
	6	10	0	.00	16	0	.00
	7	10	2	.20	17	2	.12
	8	10	8	.80	17	13	.76
Series VIII	1	10	6	.60	17	5	.29
	2	10	7	.70	17	11	.65
	3	10	1	.10	17	4	.24
	4	10	1	.10	17	2	.12
	5	10	0	.00	15	0	.00
	6	9	1	.11	17	0	.00
	7	10	8	.80	17	15	.88
	8	9	1	.11	16	7	.44

TABLE 3.65

Relationship Between Infant Illness and
Test Performance*

Variable	E ₁ (N=32)			E/C (N=29)			C/E (N=21)		
	X	SD	r	X	SD	r	X	SD	r
Griffiths IQ	110.44	10.39	.10	112.31	11.20	-.16	108.57	9.76	-.16
Locomotor	118.45	15.66	.26	127.01	17.43	-.26	121.32	16.32	-.28
Personal-Social	108.54	9.75	.14	108.20	10.73	-.04	107.52	10.51	-.05
Hearing & Speech	101.67	14.75	-.09	100.06	15.16	-.04	96.19	14.55	.22
Eye & Hand	112.69	10.33	-.09	115.32	11.78	-.04	110.00	10.04	-.29
Performance	110.22	14.49	.14	110.56	12.97	-.24	109.00	12.18	-.14
Bayley Mental	84.37	11.75	-.03	80.55	13.89	-.26	87.76	9.62	.26
Motor	104.81	16.90	.08	96.79	25.51	-.04	103.33	28.35	-.07
Task Orientation	22.78	9.11	-.05	23.72	6.83	.26	27.00	3.38	-.19

*See Table 3.8 for Illness means and standard deviations.

Parent Educators' Perceptions of the Project

In order to supplement the statistical information, we asked each of the Parent Educators who had worked with the families who had been in the project for the two-year span (E_1) a set of questions. Two interviewers, one a white anthropology graduate student who had very good rapport, Mrs. Jowaisis, and the other a Negro psychiatric nurse working on a doctorate in education, who was very well accepted by the group, Miss Bessent, conducted the tape-recorded open-ended interviews. Four areas were covered: 1. What Parent Educators saw as changes in the families; 2. What changes they saw in themselves; 3. What they liked most about the project; 4. What they liked least. The tapes were transcribed, and the following statements were extracted.

1. Effect on families

A. On the parents

B. On the other children

C. On the baby

2. Personal changes

A. In dealing with own children

B. In competence and self-esteem

C. In aspirations for self

D. In social concerns, child development knowledge

E. General education

F. Other

3. Liked most

4. Liked least

Effect on Families

On the parents

Mother changed: at first too afraid to talk with Parent Educator, isolated and never went out, took no interest in appearance - stringy hair, neglected self - lost hope look - changed to combing hair, paying attention to appearance, went out, wore hair ribbon sometimes, kept children cleaner, neater, also. Became at ease with Parent Educator and even welcomed some project visitors and was at ease.

Tongue-tied father was referred to possible corrective agencies in community.

Tongue-tied father participated in sessions and was very enthusiastic over progress of his child.

Mother's fears that her children would be taken away were allayed as she gained confidence in her ability to take care of them (own family was split up by welfare authorities, she felt).

Some fathers made toys such as blocks.

"Family" group trained when father could be off from work for a day.

Mother's childrearing practices altered by suggestions from Parent Educator in handling sibling rivalry.

Mothering style changed: persuasion, reason rather than order, yell.

Mothers saw progress of child, became interested and put child before housework.

Mother changed and became interested in child's activities.

Parents began to pay more attention to kids.

Knowledge of how to train children, what to teach them, how to teach with materials, toys, books, etc.

Mother learned to exercise baby, interact with him.

Knowledge of kids' abilities, problems.

Parent interest in helping kids learn.

Information passed on to relatives, friends.

Families see changes in their children and babies and tell others of their friends about the progress made.

Change in attitude toward kids from nuisance to pleasure.

Increased appreciation of and interest in child.

Mothers felt Parent Educator was company, felt less isolated, more valued as persons because of these visits.

Mother was susceptible to new ideas and "blossomed out."

Mothers more conscious of kids' needs - more aware of what kids doing.

Buy educational toys now.

Family bought toys to help child learn more difficult versions of a series exercise.

Put kids before housekeeping work.

Mother worked with baby, took pleasure in his response.

Mother "just a different person."

Effects disseminate - move outward from a family center.

Mother sees improvement, progress of one child and begins to work with others in the family, too.

Parent Educator was company for mother, diminishing her isolation a bit.

Mother asks personal advice, counsel of Parent Educator.

Mother concerned about test results on child, anxious to show Parent Educator what he had learned to master since last visit.

Family - saw child improve, learn new things.

Parents became more competent, more interested with children.

On the other children

Other kids: very much interested in exercises, games, in what teaching the experimental child, whether older or younger.

Kindergartner became interested in going to school - saw as important for Parent Educator to come all the way to his house to work with a baby.

Older children learn to help younger ones with Parent Educator materials especially when mother sick, pregnant and unable to do so.

Older kids curious, wanted to watch, to participate in parent education session.

Other children interested? Yes, very much so.

Two older children went back to high school, one now graduating when saw Parent Educator work with little brother - decided they could do well in school, too.

Parent helped older children with school work.

Children helped each other more, especially older helped younger.

Older kids listened, asked questions.

Mothers expressed increased interest in older children via reading to them, spending time with them, talking to them.

Older kids read books while parent education session going on.

Older kids learned the series tasks being taught a younger one in family.

Younger kids in family mastered series tasks.

Older kids read books Parent Educators bring for sessions.

Parent Educator often supplies toys, materials to occupy older children while sessions going on.

Three older sisters wanted to join in Parent Educator instruction.

Sisters learning to respect property, rights of one another - to share and not to grab.

Younger sister played "hiding" games - older sister no longer able to take her things away and hide them from younger sister. Led to better relationship between sisters.

Older and younger children learned from sessions with X child.

Children in family became more at ease with Parent Educator, seemed to make them feel more valued as persons, also.

Older children became less shy, self-conscious due to Parent Educator's attention to them and their family.

On the baby

Child became more verbal, voice better modulated rather than seldom speaking and then hardly above a whisper - by end of 2nd year.

Baby - compared to other children in family - seems quicker to catch on to things, very curious about world about him.

Experimental child became more self-reliant - less dependent on mother to fight battles with older sister - took up for own rights.

Practical advice given: baby who always was placed in crib on same side.

Babies learned they could do things and they enjoyed learning.

Personal Changes

In dealing with own children

Able to observe her own children more critically, more helpfully.
Able to listen to her own children, even when tired.

Increased competence as a parent - now knows how to go about working with own children.

Changed mothering style from yelling, ordering to persuasion, reason.

Learned to communicate meaningfully with own children - talk as they go to town, etc.

More patient and tolerant with children, both those in Project and own kids.

Pays much more attention now to own children than before.

Better understanding, relationship with own children.

Now pays more attention to own children's development, behavior.
Realizes earlier lacks, feels guilty, tries harder to take children interesting places even when too tired.

Buys children educational toys, books, visits schools more often.

View of own children: New perspective from working with other children and learning what normal children are like. Better perspective leads to fairer, more patient, more understanding treatment. Motherhood practices are improved through insight gained at work. Mother assumed greater responsibility for behavior of the children in relation to herself.
(Not that child drove me crazy, but I let that child drive me crazy.)

Saw effect of her parent education on children in project, decided to use with own kids.

Changed reactions to own children - behaved differently toward them because of insight gained in training for project.

Increased competence in dealing with own children - increased feeling of self-worth.

In competence and self-esteem

Project made aware of usable ideas, knowledge already possessed - brought out awareness and use in work with babies - increased confidence, competence.

Learned educational use of toys, how to teach imaginative, creative play with toys.

New confidence in ability: found high school education sufficient to enable to help others and found helping others very rewarding.

Greatly increased competency and desire to work with kids and to help others.

Became more competent, less shy, less afraid to fill out forms, and to do paperwork.

Discovered love of teaching - thrill of seeing someone learn.

Sense of accomplishment, contribution to those with real need.

Competence to get a decent job and salary.

Sense of accomplishment when teach and see kids progress.

More at ease with people, learned to express self to others.

Gained enough confidence to do "almost anything that somebody will teach me how to do..."

More self-confident.

Thrill of possessing ability to work with children and knowing she has this ability.

Sense of accomplishment in doing for someone who really needs help.

Teaching led to sense of accomplishment and to greater feelings of self-worth, "It really makes me feel important."

Increased competence, knowledge of teaching babies and mothers.

Greater self-confidence.

Greater knowledge, understanding of children.

Sense of personal security from earning money working on the project.

In aspirations for self

Feels competent in child-related work and will seek further employment in this field.

Wants more education and will enter junior college in the fall.

Now sees possibilities for a career plus being a wife, mother - wants to expand horizons and be more than she was - plans to take degree course in junior college.

More ambition - desire to get a high school education - finished that and went on to plan for junior college.

Feels she has personal learning potential.

Interest changed from work with things (bookkeeping clerk) to work with people - the latter is now seen as much more rewarding.

Attitude on school has changed from extremely negative (mention made her scream) to very positive - potential via education seen as escape from deadening routine of housework, isolation, constant demands, worries of being home all day and not earning money.

Sees own potential as much greater than before when stayed home all day; feels more alive, more useful.

In social concerns, child development knowledge

Ideas from project which can be applied to own nursery school for babies from birth to two years.

Changed views of teachability of young children - wishes that such knowledge had been hers when own children were younger.

Greatly increased belief in importance of teaching children early in life and with the idea that education begins at birth, not when child goes to public school.

Knowledge of baby psychology and development: had not known children this age had any great learning capacity, and did not know that children can learn from the games they play.

Changed from not caring particularly for children to real attachment for them.

Increased concern for plight of families and children in the ghetto - desire to help with their problems.

Wants to give kids a background in life, keep mothers interested in their children and in teaching them.

Pleasure in seeing parent of project become more competent in childrearing.

Gained knowledge of educability of little babies - saw that they could learn long before they could verbalize about what they had learned. Saw learning expressed, demonstrated in baby's success with games rather than in his use of words.

Much more aware of others' problems since going into homes as Parent Educator.

Gained greater sympathy, understanding of mothers' problems. Gained greater insight into own plight as a mother.

"I feel for those mothers" - desire to help others aroused.

Feels guilty because of own advancement - "I have finally gotten a little bit more than they..."

Persuasion of necessity for intervention into miserable lives - increased concern for others.

Made aware of the rewards of working with children.

Understanding own children better leads to better relationship between Parent Educator and own children.

Learned to pay attention to children as important persons - listened, and appreciated individual rates of maturing and individual differences of other kinds, too - judged each as an individual, unique.

Pleasure in seeing mothers change for the better personally.

Pleasure in seeing mothers change in relation to child.

General education

Now reads child-related materials of all sorts.

Project work caused her to use reference books, including the dictionary, and to read new books related to child education.

Became a more discriminating TV watcher: Paid attention to who originated, produced, performed in TV programs. Watched more news programs. Became selective in programs children allowed to watch.

Reads books and watches TV programs on Children and Education.

Changed reading habits: buy family material rather than personal interest, more for children than for adults.

Now buys as well as borrows magazines. Work money makes this less a luxury than before.

Now watches for TV programs on children, education, health and really enjoys them.

Other

Husband had to adjust to a working wife and to her making almost as much as he did.

Liked most

Personal growth, achievement through helping others to grow, achieve.

Pleasure in seeing mothers, children change, family relationships change.

Parent Educators felt that in some cases mothers took more pride in their appearance and that of their children.

That parents were proud to learn how to teach their own children and took pride in their accomplishments.

That parents had a greater sense of self-worth, greater confidence in their ability to help their child since visits began.

That family life-styles were changed toward those that promoted the well-being of the children.

Pleasure in helping those who need help.

Sense of accomplishment in helping families to better chance in life.

Pride in making a contribution to low-income children's ability to learn, achieve in school.

Pleasure in knowing how to help, especially how to teach a child.

Child's response, progress rewarding.

Own children's progress a pleasure.

Increased personal competence in dealing with own children.

Liked least

Paperwork: Most frequent comment was lack of practice, training in clerical tasks - feeling of inability to do the job well created anxiety - felt general education level prior to coming to project did not prepare for a paper-work job.

Second most frequent comment: frequent changes, revision for same and for different projects which made it necessary to relearn how to fill forms out properly.

Finding

Mothers: Often only the mother's name was the only name available and since mother and child were known in the community by the father's name they were difficult to find.

Rural post office addresses hard to find since post office does not generally give out information on postal patrons.

Uncooperative

Mothers: One comment only, although there were frequent comments without apparent dislike, that some mothers were often not home even for advance-arranged appointments.

Summary of the Results

We set out to accomplish three objectives: To find out whether the use of disadvantaged women as Parent Educators of indigent mothers of infants and young children: 1) enhanced the development of the infants and children; 2) increased the mother's competence and sense of self-worth; and 3) contributed to our knowledge of the home life of infants in our population. A fourth objective, although not stated as such, was to continue the demonstration of the use of paraprofessional Parent Educators as a model for the successful employment of disadvantaged women.

The results relating to the first objective indicate that at the end of the first year, children whose mothers had been involved in the project were superior to control children on both the "Griffiths Mental Development Scales" and on the series material designed originally as teaching materials for the project. At the end of the second year, children whose mothers had been in the project from the beginning or whose mothers entered the program of Parent Education when their child was one year of age were superior on the series material to control children; but the children of mothers who had only the first nine months of the program (three months to twelve months) were not superior to the control children. The pattern of scores on both the Griffiths and Bayley Scales show that the verbal area lags behind those areas involving motor skills. Generally, the first objective was met.

The results in relation to the second objective indicate that we were partially successful. Mothers for whom we had both pre and post information moved toward a more internal control of reinforcement

orientation. They now felt they had more control and more influence over what was happening in their own lives than they did when they entered the project. The paralinguistic measure indicates positive but not significant movement. The measure of self-esteem failed to reveal any changes. However, our data show that these mothers entered the project low in self-esteem and high in external orientation. The fact that this program of minimum intervention led to movement on the latter and on the voice measures is of practical significance.

Our third objective was to increase our understanding of the home life of these infants. It is obvious that we have learned a great deal about the life setting of poverty families in the rural and small-town region in which we worked. Of special note is the large range of individual differences in child care practices and verbal input in the homes which permeate the so-called culture of "poverty." Our findings suggest to us a continuing need to learn more about the way individual factors within a social class or ethnic group relate to achievement. The measure of maternal expectancy, for example, shows that sex role expectation and the mother's view of how well her child matches her ideal influences child performance. Further, we have evidence that verbal interaction within the home bears a relationship to the mother's view of her control of her destiny and also some relationship, although small, to child performance within the poverty group. Other research has indicated the importance of both these variables when the total social class range is included. Our data indicate that, within the group that some people tend to view as homogeneous, these differences exist and exert an effect on the child. The marital situation indicates that there is a higher

degree of children being reared solely by women in this population than the general statistical average. Virtually half our children are being reared in fatherless homes, and we have some indications that the poorest homes, in terms of contributing to the child's intellectual growth, may be the homes of single mothers who have never been married. The health data indicate that these children suffer handicaps from the beginning in relation to middle-class children in the amount of illness with which they must cope in the first two years of life. The data we accumulated in relation to the above objectives offers a number of leads for future programs of Parent Education.

Our fourth objective, although not stated as such, has been clearly met. We have demonstrated the viability of a program of parent education using paraprofessionals as teachers of mothers in their own homes. The stability of the Parent Education group, the statement of their own perceptions, the effects on families and on children all stand as indicators that this model is a workable scheme. Chapter 4 presents the implications derived from this research and indicates those ways in which this type of program, although successful, can be improved and enlarged to better serve both mothers and their infants.

Dissemination Activities

Although dissemination was not listed as a stated objective, the program has served as a "model" to Parent and Child Centers, Follow Through programs, day care centers, and to other University institutions in ways far beyond what we had expected. It is one of the strange events of our time that a pilot program such as this is utilized by others long before results are in. The principal investigator has been concerned about this, and has consistently attempted to communicate with others that there were no clear indications that either the particular materials which we had developed or the general approach were suitable for generalization. Nevertheless, the program is being used.

Parent and Child Centers. We reported in our progress report of March 1, 1968, the Parent Education Program was presented to parent-child personnel in Washington, D. C. in September, 1967. As an outgrowth of that seminar we developed an arrangement for working with the Chattanooga Parent and Child Center. Six Parent Educators and a coordinator from Chattanooga spent a month in training in the summer of 1968 at the University of Florida. Arrangements were also made to process PEWR and series data from the Chattanooga PCC and to provide consulting services. Unfortunately, budgetary restrictions prevented implementation of the consulting phase, but training was conducted and data analysis is still in process.

A further relationship to the PCC was a consultant visit by the principal investigator with some of the people from the migrant PCC in the State of Washington in April, 1969. A number of PCC personnel have visited the program in Gainesville, representing among other such

places as Barton, Vermont; Cleveland, Ohio; Minneapolis, Minnesota, and Atlanta, Georgia. The Jacksonville Parent and Child Center has employed a former Parent Educator who moved to Jacksonville as an infant teacher. The principal investigator also serves as a Field Research Associate to that PCC. Many of the Parent and Child Centers have purchased the stimulation booklets, but it is not clear how they are using them.

The use of the Florida Parent Education Program in the Parent and Child Center movement seems to be a useful derivative. We are convinced that the basic notion of the Parent Educator as teacher of the mother in the home is sound. Problems still lie in the engineering phases and in the organization of supportive services. It should be possible for Parent and Child Centers, which provide the supportive services, to successfully implement the stimulation types of work within their programs.

Follow Through. Included as part of Appendix F is a description of the Florida Follow Through Model which served six communities (Philadelphia, Richmond, Jacksonville, Jonesboro, Lac du Flambeau, Yakima) in the 1968-69 year and will serve 11 communities (with the addition of Hillsborough County [Tampa], Florida; Houston, Texas; Winnsboro, South Carolina; Lawrenceburg, Indiana; and Chattanooga, Tennessee) in the 1969-70 year. In addition to the Follow Through Program, the Parent Educator Model will be applied in two Head Start locations: Chattanooga, Tennessee, and Jacksonville, Florida in this coming year. Personnel from all these Follow Through communities and two Head Start centers will begin their training this summer on the Gainesville campus, and will receive continuous inservice training and

consultant support throughout the year. Our review of our work in the six communities this past year has indicated that the basic concept of a paraprofessional Parent Educator serving the mother in the home is a useful contribution to intervention in early childhood school programs.

Requests for Materials. As result of a four-minute presentation on CBS 21st Century in February, 1968, and a three-page article in Mothers Manual (Appendix L) in February, 1969, the Institute has received a great number of requests for information and materials. Appendix K lists the numbers of stimulation booklets sold. We have no way of knowing how the 700 plus parents who have purchased the booklet, after receiving information that it was not specifically developed with middle-class mothers in mind, have made use of the materials. It would be interesting to develop a follow-up questionnaire to explore the use, but we have no funds or plans to do so at this moment. We know that several requests were received from people who were told by neighbors, or in the case of physicians, by patients about the booklet materials. We commented earlier in the second chapter of the report that the materials are not complete as instructional devices. Our assumption is that many of the mothers who indicated in their letters that they were college graduates or teachers have been able to use the material as simply suggestive and develop their own approaches from them. We would hypothesize that the mothers who write us and purchase the booklet might use the materials in auto-instructional fashions differently from mothers in our project who were too stimulus bound and externally oriented to do so.

A major characteristic of the program has been the use of the paraprofessional. Many dissemination requests and activities have focused on this role rather than on the materials per se. A manuscript in press developed for the National Commission on Mental Health for Children by Irving Lazar makes substantial reference to the training phase of our project as well as to the materials. Attached as Appendix I is a copy of a New Careers letter indicating our use of Parent Educators. As mentioned above, the Follow Through and PCC programs have adopted this phase of the project, even though they are developing their own materials.

Publications and Papers. Appendix J lists the publications and the scientific meetings at which the project has been described.

In summary, two main characteristics of the Early Child Stimulation Project have been adopted in other places as an outgrowth of our work: 1) The stimulation materials in booklet form, and 2) the use of the paraprofessional as Parent Educator in the home. The fact that these two elements have been used or selected suggests a third fundamental point has also been accepted. That is, that adults who are "disadvantaged" can learn and change, and change each other. The focus on the mother rather than only on the child in the generalization from our model indicates an acceptance of our fundamental assumption that the home is the central agency, and the mother is the primary teacher of her child. This does not mean that children cannot be placed in day care group settings, but it does suggest that those who have adopted our notions

feel that this is insufficient in and of itself to lead to lasting change. Whether this assumption is correct has not been completely demonstrated in this one project, nor in the settings which have modeled upon us. Although it is a hackneyed phrase, only time will tell. We have encouraged those who have asked our opinions that they build as careful research and evaluation into their program as it is possible to do in order that judgments can be made longitudinally. We hope that funds in the new Office of Child Development will make such modeling activities with research elements possible, and that in addition to our orientation others will be tested in similar fashion.

CHAPTER 4

IMPLICATIONS

Where do we stand at this point? This parent education program, originally begun in 1966 with support from the Fund for the Advancement of Education, shows one successful approach to enhancing child development. In June, 1969, we face continuous pressure to provide adequate environmental settings designed to promote maximum development of the infants and children in our society. We know there are many mothers who do not offer learning opportunities to their children in their homes. We know further, that although this may occur with higher frequency in poverty families, it is not confined to any social class, race or ethnic group. In addition, we face the changes in laws which may require more mothers to seek employment and force them to place infants and very young children in group settings. By no means do the results from this study provide clear answers to the above issues, nor would it be possible for any single study, especially a pioneer effort such as this, to accomplish such a task. However, what we have learned may provide clues to some movement toward the solution of the social problems which face our country in the immediate future and probably for the next few decades.

First, we have demonstrated that paraprofessionals can be successfully used as educators of mothers in a home visit program. Parent educators are able to maintain contacts, grow in the job, develop their own self-esteem along with their skill, and create new careers for themselves which are socially useful and psychologically satisfying. When Children's Bureau support began on July 1, 1967, we employed 15

full-time Parent Educators and 6 half-time Parent Educators. All 21 people were still employed when field operations for this project ceased on February 28. All but two (half-time) are still employed in the longitudinal study currently being supported by the National Institute of Mental Health. Not only does the fact of extremely low turnover among parent educators serve as an additional demonstration of the viability of such a program, but also the change in salary, status and opportunity which has taken place over these years must be considered. When we employed the Parent Educators, the State of Florida determined a pay rate for a merit line item which was created for this project and entitled "Child Development Trainer." The beginning salary was \$3,060 a year, although we were able to employ many of the Parent Educators who had been with us from August, 1966, at a beginning rate of \$3,120 per year. Since that time there was a merit pay raise on July 1, 1968, which averaged 7½%. Because the duties in the current longitudinal phase of the program include responsibility for running a small group center, supervising another adult, as well as continued parent education, we have been able to create a new career step in which the average beginning salary for our experienced Parent Educators beginning September 1, 1969, will be approximately \$4,000.

The two Parent Educators who did not have high school diplomas have now both received them through attending night classes. Several Parent Educators have begun work on Associate of Arts degrees at the local Junior College, and one is now currently enrolled in the University in elementary education, taking work on a part time basis because of her full-time employment. Beginning in July, 1969, the Santa Fe Junior College will offer a special certificate-granting program for the Parent Educators in

which they will receive credit for one-fourth of the total program for their participation in the Early Child Stimulation Project. The Parent Educators themselves have formed their own association so that they can seek further education and other means of employment when research contracts eventually terminate. We feel all of these are indicators of the value of developing a program such as ours.

If we need to find employment for many disadvantaged women who will be required to work, then the role of Parent Educator can be expanded so that many women can learn to teach their friends, neighbors and residents of their communities better ways to interact with their children.

Second, we have learned that a program of parent education, in order to make sufficient impact, must be embedded in a comprehensive system of social change. Many of our mothers, even though willing, were unable to avail themselves of the learning opportunity because of the overwhelming influences of deleterious life circumstances. Adequate housing, adequate food, adequate medical services, adequate income, adequate power are all intertwined in a single system with adequate parent education. Over the years we have had numerous stories from our Parent Educators about families who needed commodity foods but were not qualified because of some legality. We know of families who need clothing, medical services, nutritional information. In a number of these cases Parent Educators were able to seek out help from volunteer agencies or some branch of county government. In other cases, we remained frustrated because of the various legal restrictions which served to make many poverty families ineligible for certain kinds of help.

Our families included those who lived so far out in rural areas that they walked two miles to a creek for water. We had families with

no electricity, with no screens on windows or doors so that children were constantly plagued by fleas, mosquitoes, gnats and all variety of insect life. We know that many of our families were deeply in debt, including some of our Parent Educators. One of our Parent Educators was in such straits and living on such a slim margin, that car repairs or illness would temporarily destroy any efficiency, because there was no way for her to make ends meet. One of our Parent Educators lost her home in a fire and only the concerted effort of all the other people in the project enabled her family to reconstruct their lives and begin the process of rebuilding. Faced with such odds, our Parent Educators were able to "make it" because of the job situation, but some of our mothers who dropped out could not overcome such barriers. One of the changes we noted in our Parent Educators was the effect of steady income in a highly esteemed job in the University setting. They had opportunities to learn successful management of credit through the credit union, they learned about social agencies so that many of them were able to secure better housing, better medical care, and additional formal education. They also were able to become involved in community action programs such as the Governor's "Operation Concern." These benefits which they derived must be incorporated into a program so that they become available to all. The Parent and Child Center concept comes closest to this systems approach.

Third, the curriculum of parent education as used in this program was confined to the development of concrete, specific exercises for mothers to engage in with their children. Basically, this is a sound and successful notion. However, as Parent Educators gained in experience and self confidence they were increasingly able to make a variety of

suggestions in the area of curriculum development which may be more closely related to some cultural norms than tasks derived from psychological, theoretical positions. If the objective is a rhythm and music involvement between mother and child, there is no reason that culturally relevant music and rhythms cannot be used. Initially when we attempted to elicit such games, stories and songs we used were unsuccessful and we fell back on "London Bridge," but 1969 is not 1966 and it is now much more possible to stress cultural contributions and embed them in a parent education and child stimulation program.

A curriculum which attempts only what we attempted may be, in the long run, too narrow to make sufficient change in a child's orientation toward the world and the culture beyond his family and group. We noted the fearfulness with which two year olds approached our testing situation in contrast to middle class children. We need to devise a curriculum which stresses and utilizes curiosity and openness and exploration far more than we attempted in this pilot effort. This creates a variety of problems, both in the training of Parent Educators and in their teaching of mothers. We found on our home visits that a primary technique was an ordering-forbidding approach with little joy expressed at success and little opportunity for simple repetition of activities that the child could already do. Although our Parent Educators did very well with the materials we provided them, and although they were able to make useful suggestions for tasks in our initial series, too many of the tasks could be used as "testing" by the mother rather than as "teaching." We referred to this problem in chapter two; here we wish to reemphasize the importance of designing materials, and the instructions which accompany them, so that the child's horizons are expanded and the

mother comes to enjoy and value his new scope rather than restricting him. We need to develop and provide for parallel tasks which build laterally as well as horizontally. In task development, we face the problem of space and equipment, particularly as the child reaches 18 months. We need to help the Parent Educator make more use of her ingenuity and continue to involve her in task development so that a program does not become stereotyped. Further, we need constantly to remember that the mother is the target and not the child. Tasks must be designed so that the mother sees some sense in and gets some enjoyment out of them, and can see the child grow in his ability to cope with them. Otherwise, we run the danger of the mother becoming stale.

Although in all other cases, the children of mothers in experimental groups out-performed control children at age one and two, this did not happen at age two for those who were experimental for only the period from three months to one year of age. The children may have learned the specific tasks, but they did not gain the power to learn on their own. Their mothers did not gain in generalizations necessary to translate the procedures learned in the first year into the development of their own tasks. The lack of maintenance may also be because the mothers did not achieve the understanding that it was important to continue to provide the child with opportunities to learn. This is not an uncommon problem. Professional teachers, as well as these mothers, do not generalize from one type of learning situation to another, nor do they necessarily free children to learn. We face the problem: how do we teach for generalization of principles? Curriculum development stressing this goal for the mother as well as the goals

of curiosity, openness, joy, for both mother and child, must be important parts of the system.

Fourth, how one teaches is probably of more fundamental import at these early years than what one teaches. This relates to comments directly above. We need to learn far more than we now know about the general home conditions which influence intellectual and personality growth. Our data suggest the importance within this population of the role of total adult verbal interaction in a direct face to face situation with the child. We found radios and television sets would be on in many of these homes with no one paying the least attention. They were noise in the system. We believe that language development is learned best in an interpersonal setting in which the child receives immediate feedback from his environment and in which his actions are accompanied by descriptive words from the significant adults who surround him. Although we are aware of the Children's Television Workshop, we are not at all convinced that these mothers will take advantage of such a program, nor will their children necessarily learn and maintain whatever it is they are learning. The problem will be to get the mother to turn the set on, to watch it with the child, and then to carry on communication, discussion and play with the child based upon what she has seen. Our belief is that if this does not occur, the program effects from television will not be lasting. We need to find more ways to encourage parents to communicate with their children, to realize that what they say, how they say it and when they say it makes a difference.

Further, we often found that children were not permitted to make mistakes. Parents and Parent Educators would overly assist the child to perform a task in the right fashion and not necessarily let him learn

through any semblance of a discovery approach. Parents also tended to believe there was one right way to perform a task. If a child was to pile different sized rings on a spindle, then the parent behaved as though the rings must be arranged in an ordinal fashion and would stop the child from picking up the wrong ring. Opportunities for trial and error accompanied by language were lacking in these homes, and many provisions must be made for introducing these opportunities.

Our mothers, when we observed them on home visits, reminded us of the lower class mothers described by Hess and Shipman. Any effective program of parent education needs to help the mother see "the power of positive thinking." We need to help her learn some of the principles of learning, but not necessarily in any doctrinaire fashion. Part of our task is to help her understand how important her evaluation of the child is on his self-concept, how important her expectations for him are on his development, how important it is to provide a variety of opportunities and challenges rather than a rote learning approach. Again, our own tasks may to some degree have fostered some of the rote learning procedures, although we suspect that these techniques are deeply embedded in the culture. Parent education has many subtle changes to bring about. The way in which Parent Educators are themselves taught must provide clear models to them of ways in which they are expected in turn to teach the mother. If materials or instruction of Parent Educators lend themselves to a closed approach, then we cannot expect them to teach a mother to be open and experimental in playing and working with her child.

Fifth, we had a feeling often during the second year that there was a lag in the program. The data on the children who became experimental

in the second year do not support our feeling, but the lack of continuous growth by the original experimental group suggests that the feeling was not completely off. More challenge, more diversity, more involvement, more new tasks should have been introduced beginning around the 18-month point for these children. We now believe that a program of group day care in small group settings similar to our present Backyard Center operation for two to three year olds can be successfully begun as early as 18 months if not before. In our Backyard, or Home Learning Center, a Parent Educator, now called a Home Learning Center Director, and the mother who lives in that home, work with five children between the age of two and three for two, two-hour periods a week. In addition, the Parent Educator visits each home once a week to continue teaching the mother. If group day care is introduced for children as young as 18 months, or even earlier, there will need to be a whole new training program because the skills learned by Parent Educators for demonstrating with one child as a means of teaching the mother do not necessarily equip her for dealing with small groups of children in a setting designed for educational aims. A training curriculum would need to include knowledge of group management, especially from an ecological point of view. The Parent Educator needs help in knowing how to so organize a learning setting that discipline problems are avoided before they start, learning materials are carefully placed, children are enabled to handle the environment without distressing themselves or others. Further, the curriculum needs to help a Parent Educator learn all of the many ways in which any piece of equipment can be used for learning, rather than the most obvious way, or the way prescribed by the manufacturer. She needs skill in how to work with another

adult in which she has to play a supervisory role. Problems of health care, sanitation, insurance, responsibility all become major issues when one moves from a home visit approach to a group setting. Further, experimentation is required as to the most appropriate mix of group versus individual instruction. Palmer's research suggests that a long period spent in a one to one relationship is the most significant factor in the development of two year olds. If this is so, the group setting must be so organized and staffed to allow for this kind of time.

While we are still strong in our belief that the mother is the key person, we believe that her efforts can be supplemented through some form of group learning experience at least as early as age 18 months if not earlier.

Group day care may offer another phase to the systems approach to the solution of some of our problems of employment and social change along with early child education. We can create small day care centers mainly staffed by paraprofessionals from the neighborhood who have been trained in a variety of stimulation orientations and techniques to work not only with the children but also with the mothers. The Lanham Act activities in World War II provide one possible model, the Parent Cooperative Nursery School provides another possible model. Both of these, however, were single thrusts that did not relate to the problems of housing, planned parenthood, income maintenance, nutrition and a sense of involvement in one's own destiny for people who were neither middle class nor employed in industrial plants.

Our attrition data and our Parent Educators' comments indicate that there are mothers in this population we were not able to serve in our

type of program. It may very well be that we could serve them if their other life needs were well met. However, there may be some mothers, particularly young single ones, whose attitudes towards their children are such that group settings might be a more effective beginning point. Mothers often begin their involvement as classroom observers. This role can be extended downward to 18 month olds or to whatever point the group setting might be used. The role of the mother as observer has long been common in education and has been used in Head Start programs, Follow Through programs, parent cooperative nursery programs, as well as in the emerging Parent and Child Centers. As we develop more cable television potential, we might be able to use some form of closed circuit or special channel approach to begin to reach the less interested mother. Instead of a program designed particularly for the child, we might video-tape the group day care center and inform the mother that she can see her child at work and play on channel X at 7:00 PM. This can be followed up by home visits to discuss what was on the program, with some preparation for what might be seen next time, with some opportunity for the mother herself, if she attends the group setting, to see herself next week on television. We found that our few moments on 21st Century served as tremendous impetus to our staff and mothers. There is no reason that such a vehicle cannot be used more systematically to involve peripheral mothers. It can also be used, of course, as an extremely effective means of inservice education of Parent Educators, and we have done some of this in the past. That is only one possible approach. We need to explore a variety of means for reaching the unreachable.

Sixth, many of our mothers lacked any skill in handling group relationships with other women or for setting up programs or plans for themselves. Parent education more broadly conceived would need to include teaching skills in group relations, program planning, action activities which would increase the mother's ability to deal with her neighborhood, the school, and social agencies. If one of our goals in parent education is to increase the mother's self-esteem and feeling of control, then we must develop educational programs which give her the skill to cope effectively with the environment. We found that when we attempted small group meetings the lack of skill was most evident. We were not organized or staffed to fill this gap, but we would strongly recommend that this be part of the system.

Seventh, toward the end of the project, several of our mothers were able to move into public housing which became available for the first time. We learned quickly that merely providing adequate housing does not necessarily change the mother's attitude toward herself, toward her child, or toward the society at large. Mothers who were difficult mothers before they moved were still difficult mothers. Mothers who were cooperative and eager before they moved were still cooperative, eager mothers. We discovered, however, that some mothers had no notion as to how to care for, maintain and make effective use of a modern apartment. A parent education program should include help for the mother on simple maintenance of equipment, use of electrical appliances and other basic survival techniques in the urban world. Parent education, even though it's aim is the development of the child, should cover a far broader range of topics than those originally

involved in this project in order that the mother can make the most effective use of the materials which are immediately relevant to the child.

Eighth, when we shift from program goals to problems of methodology, we are very concerned that current measurement techniques are woefully inadequate for assessing learning and development in either infants or mothers. We have already commented on our testers' reactions to the Bayley Scales. Although the Griffiths Scales of Mental Development at age one are easier to administer, we are not at all sure whether or how they relate to learning in later years. Our own series material proved as useful or more useful than standard intelligence tests. In effect, the concept of teaching the child and measuring him to see if he has learned what you have taught him, which is now being applied in primary grades as a substitute for the intelligence test, may be our best approach in infancy and pre-school as well.

We need to examine many more parameters of infant behavior than those measured in a standard test situation. Schaefer's notion of task orientation is a step in the right direction. We need to develop many observational measures of child performance in natural settings and study the ways in which these change in relation to materials and instruction as they are introduced.

The measurement of maternal attitude is another difficult area. The SRI seems to be a useful first step. The HISM proved less useful in this setting, while the semantic differential approach, although cumbersome, offers interesting possibilities. The need to introduce some standard techniques which can be applied in a variety of projects so that some comparative measures can be studied is crucial as workers

attempt to generalize from the various present pilot efforts. Further, we need to develop measures that do not require a high degree of skill and sophistication to administer because of the lack of personnel in many places for carrying on the kind of careful testing involved in Griffiths, Bayley and Stanford-Binet type testing. Studies of methodology are essential to progress. Just as it takes years to perfect a new surgical technique, it takes years to perfect a good psychological measurement technique. Support in the way of funds is an absolute necessity if we wish to make sound progress in our assessment techniques so that we avoid the problems that have faced Head Start and other programs when poor evaluation jeopardizes what may be a good program. It is fairly characteristic to suggest that further research is necessary. Although this is a trite statement, it nevertheless must be made. We need many efforts such as this project to try varieties of approaches to meeting the needs of our mothers and their infants. As a part of this effort, careful research and evaluation designs and basic methodological studies including instrument development must be built in. Large-scale service operations are probably necessary, but even these should have heavily supported evaluation. We need to realize that long-range programmatic efforts, including longitudinal designs, are necessary before we can arrive at what might approximate the optimum mix of procedures for maximizing child development. As an analogy, we can examine what it cost and how much planning went in to sending an astronaut to the moon, how many mistakes were made along the way which did not lead to cancelling the program, but suggested new solutions. We will make mistakes and

have made mistakes in programs of intervention, but these should not be used to stop programs, but should be used to learn how to solve the problem. If we can solve the problem of getting a man to the moon, we can expend the effort and solve the problem of helping our children grow. We can ask for nothing less for the children of the nation.

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